CHAPTER TWO

Supply Chain Performance: Achieving Strategic Fit and Scope

2.1 Competitive and Supply Chain Strategies
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Learning Objectives

After reading this chapter, you will be able to:

1. Explain why achieving strategic fit is critical to a company's overall success.
2. Describe how a company achieves strategic fit between its supply chain strategy and its competitive strategy.
3. Discuss the importance of expanding the scope of strategic fit across the supply chain.

In Chapter 1, we discuss what a supply chain is and the importance of supply chain design, planning, and operation to a firm's success. In this chapter, we define supply chain strategy and explain how creating a strategic fit between a company's competitive strategy and its supply chain strategy affects performance. We also discuss the importance of expanding the scope of strategic fit from one operation within a company to all stages of the supply chain.

2.1 COMPETITIVE AND SUPPLY CHAIN STRATEGIES

A company's competitive strategy defines the set of customer needs that it seeks to satisfy through its products and services. For example, Wal-Mart aims to provide high availability of a variety of reasonable quality products at low prices. Most products sold at Wal-Mart are commonplace (everything from home appliances to clothing) and can be purchased elsewhere. What Wal-Mart provides is a low price and product availability. McMaster Carr sells maintenance, repair, and operations (MRO) products. It offers over 200,000 different products through both a catalog and a Web site. Its competitive strategy is built around providing the customer with convenience, availability, and responsiveness. With this focus on responsiveness, McMaster does not compete based on low price. Clearly, the competitive strategy at Wal-Mart is different from that at McMaster.

We can also contrast Dell with its build-to-order model, with a firm like HP, selling PCs through retailers. Dell has stressed customization and variety at a reasonable cost, with customers having to wait approximately 1 week to get their product. In contrast, a customer can walk into a computer retailer, be helped by a salesperson, and leave the same day with an HP computer. The amount of variety and customization available at the retailer, however, is limited. In each case, the competitive strategy is defined based on how the customer prioritizes product cost, delivery time, variety, and quality. A McMaster Carr customer places greater emphasis on product variety and response time than on cost. A Wal-Mart customer, in contrast, places greater emphasis on cost. A Dell customer, purchasing online, places great emphasis on product variety and customization. A customer purchasing a PC at a retailer is most concerned with the help in product selection and faster response time. Thus, a firm's competitive strategy will be defined based on the customer's priorities. Competitive strategy targets one or more customer segments and aims to provide products and services that satisfy these customers' needs.

To see the relationship between competitive and supply chain strategies, we start with the value chain for a typical organization, as shown in Figure 2.1.

The value chain begins with new product development, which creates specifications for the product. Marketing and sales generates demand by publicizing the customer priorities that the product and services will satisfy. Marketing also brings customer input back to new product development. Using new product specifications, operations transforms inputs to outputs to create the product. Distribution either takes the product to the customer or brings the customer to the product. Service responds to customer requests during or after the sale. These are core functions that must be performed for a successful sale. Finance, accounting, information technology, and human resources support and facilitate the functioning of the value chain.

To execute a company's competitive strategy, all these functions play a role and each must develop its own strategy. Here, strategy refers to what each function will try to do particularly well.
A product development strategy specifies the portfolio of new products that a company will try to develop. It also dictates whether the development effort will be made internally or outsourced. A marketing and sales strategy specifies how the market will be segmented and how the product will be positioned, priced, and promoted. A supply chain strategy determines the nature of procurement of raw materials, transportation of materials to and from the company, manufacture of the product or operation to provide the service, and distribution of the product to the customer, along with any follow-up service. From a value chain perspective, supply chain strategy specifies what operations, distribution, and service will try to do particularly well. Additionally, in each company, strategies will also be devised for finance, accounting, information technology, and human resources.

Because our focus here is on supply chain strategy, we define it in a little more detail. Supply chain strategy includes what many traditionally call supplier strategy, operations strategy, and logistics strategy. Decisions regarding inventory, transportation, operating facilities, and information flows in the supply chain are all part of supply chain strategy.

The value chain emphasizes the close relationship between all the functional strategies within a company. Each function is crucial if a company is to profitably satisfy customer needs. Thus, the various functional strategies cannot be formulated in isolation. They are closely interwined and must fit and support each other if a company is to succeed. We are particularly concerned here with the link between a company's competitive strategy and supply chain strategies. We will seek to answer this question: Given its competitive strategy, what should a company's supply chain try to do particularly well?

2.2 ACHIEVING STRATEGIC FIT

This chapter is built on the idea that for any company to be successful, its supply chain strategy and competitive strategy must fit together. Strategic fit means that both the competitive and supply chain strategies have the same goal. It refers to consistency between the customer priorities that the competitive strategy hopes to satisfy and the supply chain capabilities that the supply chain strategy aims to build. The issue of achieving strategic fit is a key consideration during the supply chain strategy or design phase discussed in Chapter 1.

All functions that are part of a company's value chain contribute to its success or failure. These functions do not operate in isolation; no one function can ensure the chain's success. Failure at anyone function, however, may lead to failure of the overall chain. A company's success or failure is thus closely linked to the following keys:

1. The competitive strategy and all functional strategies must fit together to form a coordinated overall strategy. Each functional strategy must support other functional strategies and help a firm reach its competitive strategy goal.

2. The different functions in a company must appropriately structure their processes and resources to be able to execute these strategies successfully.

A company may fail either because of a lack of strategic fit or because its processes and resources do not provide the capabilities to support the desired strategic fit. In thinking of the major tasks of a chief executive officer (CEO), there are few greater than the job of aligning all of the core functional strategies with the overall competitive strategy to achieve strategic fit. If this alignment is not achieved, conflicts between different functional goals arise. Such conflicts result in different functions targeting different customer priorities. Because processes and resources are structured to support functional goals, a conflict in functional goals leads to conflicts during execution.

Consider, for example, a situation in which marketing is publicizing the company's ability to provide a large variety of products very quickly; simultaneously, distribution is targeting the lowest cost means of transportation. In this situation, it is very likely that distribution will delay orders so it can get better transportation economies by grouping several orders together. This action conflicts with marketing's stated goal of providing variety quickly.

To elaborate on strategic fit, let us return to the example of Dell Computer from Chapter 1. Dell's competitive strategy is to provide a large variety of customizable products at a reasonable price; customers can select from among thousands of possible PC configurations. In terms of supply chain strategy, a PC manufacturer has a range of options. At one extreme, a company can have an efficient supply chain with a focus on the ability to produce low-cost PCs by limiting variety and exploiting economies of scale. At the other extreme, a company can have a highly flexible and responsive supply chain that is very good at producing a large variety of products. In this second case, costs will be higher.
than in an efficient supply chain. Both supply chain strategies are viable by themselves. Both do not fit, however, with Dell's competitive strategy. A supply chain strategy that emphasizes flexibility and responsiveness has a better strategic fit with Dell's competitive strategy of providing a large variety of customizable products.

This notion of fit also extends to Dell's other functional strategies. For instance, its new product development strategy should emphasize designing products that are easily customizable, which may include designing common platforms across several products and the use of common components. Dell products use common components and are designed so that they can be assembled quickly. This feature allows Dell to assemble customized PCs quickly in response to a customer order. The design of new products at Dell supports the supply chain's ability to assemble customized PCs in response to customer orders. This capability, in turn, supports Dell's strategic goal of offering customization to its customers. Dell clearly has achieved strong strategic fit between its different functional strategies and its competitive strategy.

How Is Strategic Fit Achieved?

What does a company need to do to achieve that all-important strategic fit between the supply chain and competitive strategies? A competitive strategy will specify, either explicitly or implicitly, one or more customer segments that a company hopes to satisfy. To achieve strategic fit, a company must ensure that its supply chain capabilities support its ability to satisfy the targeted customer segments.

There are three basic steps to achieving strategic fit:

1. **Understanding the customer and supply chain uncertainty.** First a company must understand the customer needs for each targeted segment and the uncertainty the supply chain faces in satisfying these needs. These needs help the company define the desired cost and service requirements. The supply chain uncertainty helps the company identify the extent of disruption and delay the supply chain must be prepared for.
2. **Understanding the supply chain capabilities.** There are many types of supply chains, each of which is designed to perform different tasks well. A company must understand what its supply chain is designed to do well.
3. **Achieving strategic fit.** If a mismatch exists between what the supply chain does particularly well and the desired customer needs, the company will either need to restructure the supply chain to support the competitive strategy or alter its strategy.

**Step 1: Understanding the Customer and Supply Chain Uncertainty**

To understand the customer, a company must identify the needs of the customer segment being served. Let us compare 7–Eleven Japan and a discount store such as Sam's Club (a part of Wal-Mart). When customers go to 7–Eleven to purchase detergent, they go there for the convenience of a nearby store and are not necessarily looking for the lowest price. In contrast, a low price is very important to a customer going to Sam's Club. This customer may be willing to tolerate less variety and even purchase very large package sizes as long as the price is low. Even though customers purchase detergent at both places, the demand varies along certain attributes. In the case of 7–Eleven, customers are in a hurry and want convenience. In the case of Sam's Club, they want a low price and are willing to spend time getting it. In general, customer demand from different segments may vary along several attributes as follows:

- **The quantity of the product needed in each lot:** An emergency order for material needed to repair a production line is likely to be small. An order for material to construct a new production line is likely to be large.
- **The response time that customers are willing to tolerate:** The tolerable response time for the emergency order is likely to be short, whereas the allowable response time for the construction order is apt to be long.
- **The variety of products needed:** A customer may place a high premium on the availability of all parts of an emergency repair order from a single supplier. This may not be the case for the construction order.
- **The service level required:** A customer placing an emergency order expects a high level of product availability. This customer may go elsewhere if all parts of the order are not immediately available. This is not apt to happen in the case of the construction order where a long lead time is likely.
- **The price of the product:** The customer placing the emergency order is apt to be much less sensitive to price than the customer placing the construction order.
- **The desired rate of innovation in the product:** Customers at a high-end department store expect a lot of innovation and new designs in the store's apparel. Customers at Wal-Mart may be less sensitive to new product innovation.

Each customer in a particular segment will tend to have similar needs, whereas customers in a different segment can have very different needs.

Although we have described the many attributes along which customer demand varies, our goal is to identify one key measure for combining all of these attributes. This single measure then helps define what the supply chain should do particularly well.

**Implied Demand Uncertainty** At first glance, it may appear that each of the customer need categories should be viewed differently, but in a very fundamental sense, each customer need can be translated into the metric of implied demand uncertainty. **Implied demand uncertainty** is the uncertainty that exists due to the portion of demand that the supply chain is required to meet.
We make a distinction between demand uncertainty and implied demand uncertainty. Demand uncertainty reflects the uncertainty of customer demand for a product. Implied demand uncertainty, in contrast, is the resulting uncertainty for only the portion of the demand that the supply chain must handle and the attributes the customer desires. For example, a firm supplying only emergency orders for a product will face a higher implied demand uncertainty than a firm that supplies the same product with a long lead time.

Another illustration of the need for this distinction is the impact of service level. As a supply chain raises its level of service, it must be able to meet a higher and higher percentage of actual demand, forcing it to prepare for rare surges in demand. Thus, raising the service level increases the implied demand uncertainty even though the product's underlying demand uncertainty does not change.

Both the product demand uncertainty and various customer needs that the supply chain tries to fill affect implied demand uncertainty. Table 2.1 illustrates how various customer needs affect implied demand uncertainty.

As each individual customer need contributes to the implied demand uncertainty, we can use implied demand uncertainty as a common metric with which to distinguish different types of demand.

Fisher (1997) pointed out that implied demand uncertainty is often correlated with other characteristics of demand, as shown in Table 2.2. An explanation follows:

1. Products with uncertain demand are often less mature and have less direct competition. As a result, margins tend to be high.
2. Forecasting is more accurate when demand is more predictable.
3. Increased implied demand uncertainty leads to increased difficulty matching supply with demand. For a given product, this dynamic can lead to either a stockout or an oversupply situation. Increased implied demand uncertainty thus leads to both higher oversupply and a higher stockout rate.
4. Markdowns are high for products with high implied demand uncertainty because oversupply often results.

<table>
<thead>
<tr>
<th>TABLE 2.1 Impact of Customer Needs on Implied Demand Uncertainty</th>
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<tbody>
<tr>
<td>Customer Need</td>
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<td>----------------</td>
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<tr>
<td>Range of quantity required increases</td>
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<tr>
<td>Lead time decreases</td>
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<tr>
<td>Variety of products required increases</td>
</tr>
<tr>
<td>Number of channels through which product may be acquired increases</td>
</tr>
<tr>
<td>Rate of innovation increases</td>
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<tr>
<td>Required service level increases</td>
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First let us take an example of a product with low implied demand uncertainty such as table salt. Salt has a very low contribution margin, accurate demand forecasts, low stockout rates, and virtually no markdowns. These characteristics match well with Fisher's chart of characteristics for products with highly certain demand.

On the other end of the spectrum, a new "palmtop" computer has high implied demand uncertainty. It will likely have a high margin, very inaccurate demand forecasts, high stockout rates (if it is successful), and large markdowns (if it is a failure). This too matches well with Table 2.2.

<table>
<thead>
<tr>
<th>TABLE 2.2 Correlation Between Implied Demand Uncertainty and Other Attributes</th>
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<tbody>
<tr>
<td>High Implied Uncertainty</td>
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<tr>
<td>Product margin</td>
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<tr>
<td>Average forecast error</td>
</tr>
<tr>
<td>Average stockout rate</td>
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<td>Average forced season end markdown</td>
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</table>

Another example is a circuit board supplier whose customers include two different types of PC manufacturers. One of its customers is a build-to-order PC manufacturer such as Dell that requires same-day lead times. In this case, the supplier might need to build up inventory or have very flexible manufacturing to be prepared for whatever demand Dell had that day. Forecast error would be high and stockouts could be high: because of these factors, margins would likely be higher. The supplier's other customer builds a small variety of PCs and specifies in advance the number and type of PCs to be built. This information gives the supplier a much longer lead time and reduces the forecasting errors and stockout rates. Thus, the supplier would likely get smaller margins from this PC manufacturer. These examples demonstrate that even with the same product, different customer segments can have different implied demand uncertainty given different service requirements.

Lee (2002) pointed out that along with demand uncertainty, it is important to consider uncertainty resulting from the capability of the supply chain. For example, when a new component is introduced in the PC industry, the quality yields of the production process tend to be low and breakdowns are frequent. As a result, companies have difficulty delivering according to a well-defined schedule, resulting in high supply uncertainty for PC manufacturers. As the production technology matures and yields improve, companies are able to follow a fixed delivery schedule, resulting in
low supply uncertainty. Table 2.3 illustrates how various characteristics of supply sources affect the supply uncertainty.

**TABLE 2.3 Impact of Supply Source Capability on Supply Uncertainty**

<table>
<thead>
<tr>
<th>Supply Source Capability</th>
<th>Causes Supply Uncertainty to . . .</th>
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<tbody>
<tr>
<td>Frequent breakdowns</td>
<td>Increase</td>
</tr>
<tr>
<td>Unpredictable and low yields</td>
<td>Increase</td>
</tr>
<tr>
<td>Poor quality</td>
<td>Increase</td>
</tr>
<tr>
<td>Limited supply capacity</td>
<td>Increase</td>
</tr>
<tr>
<td>Inflexible supply capacity</td>
<td>Increase</td>
</tr>
<tr>
<td>Evolving production process</td>
<td>Increase</td>
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Supply uncertainty is also strongly affected by the life cycle position of the product. New products that are being introduced have higher supply uncertainty because designs and production processes are still evolving. In contrast, mature products have less supply uncertainty.

We can create a spectrum of uncertainty by combining the demand and supply uncertainty. This implied uncertainty spectrum is shown in Figure 2.2.

A company introducing a brand-new cell phone based on entirely new components and technology faces high implied demand uncertainty and high supply uncertainty. As a result, the implied uncertainty faced by the supply chain is very high. In contrast, a supermarket selling milk or salt faces low implied demand uncertainty and low levels of supply uncertainty, resulting in a low implied uncertainty. Many agricultural products such as coffee are examples where supply chains face low levels of implied demand uncertainty but significant supply uncertainty based on weather. The supply chain thus has to face an intermediate level of implied uncertainty.

**FIGURE 2.2 The Implied Uncertainty (Demand and Supply) Spectrum**

- Predictable supply and demand
- Predictable supply and uncertain demand or uncertain supply and predictable demand or somewhat uncertain supply and demand
- Highly uncertain supply and demand

Salt at a supermarket
An existing automobile model
A new communication device

**Key Point** The first step in achieving strategic fit between competitive and supply chain strategies is to understand customers and supply chain uncertainty. Uncertainty from the customer and the supply chain can be combined and mapped on the implied uncertainty spectrum.

**Step 2: Understanding the Supply Chain**

After understanding the uncertainty that the company faces, the next question is: How does the firm best meet demand in that uncertain environment? Creating strategic fit is all about creating a supply chain strategy that best meets demand that a company has targeted given the uncertainty it faces.

We now consider the characteristics of supply chains and categorize them. Similar to the way we placed demand on a one-dimensional spectrum (the implied uncertainty spectrum), we will also place each supply chain on a spectrum. Like customer needs, supply chains have many different characteristics. However, if we search for a single idea to which all characteristics of the supply chain contribute, it is the idea of the trade-off between responsiveness and efficiency.

First we provide some definitions. Supply chain responsiveness includes a supply chain's ability to do the following:

- Respond to wide ranges of quantities demanded
- Meet short lead times
- Handle a large variety of products
- Build highly innovative products
- Meet a very high service level
- Handle supply uncertainty

These abilities are similar to many of the characteristics of demand and supply that led to high implied uncertainty. The more of these abilities that a supply chain has, the more responsive it is.
Responsiveness, however, comes at a cost. For instance, to respond to a wider range of quantities demanded, capacity must be increased, which increases costs. This increase in cost leads to the second definition: Supply chain efficiency is the cost of making and delivering a product to the customer. Increases in cost lower efficiency. For every strategic choice to increase responsiveness, there are additional costs that lower efficiency.

The cost-responsiveness efficient frontier is the curve in Figure 2.3 showing the lowest possible cost for a given level of responsiveness. Lowest is defined based on existing technology; not every firm is able to perform on the efficient frontier. The efficient frontier represents the cost-responsiveness performance of the best supply chains. A firm that is not on the efficient frontier can improve both its responsiveness and its cost performance by moving toward the efficient frontier. In contrast, a firm on the efficient frontier can only improve its responsiveness by increasing cost and becoming less efficient. Such a firm must then make a trade-off between efficiency and responsiveness. Of course, firms on the efficient frontier are also continuously improving their processes and changing technology to shift the efficient frontier itself. Given the trade-off between cost and responsiveness, a key strategic choice for any supply chain is the level of responsiveness it seeks to provide.

Supply chains range from those that focus solely on being responsive to those that focus on a goal of producing and supplying at the lowest possible cost. Figure 2.4 shows the responsiveness spectrum and where some supply chains fall on this spectrum.

The more capabilities constituting responsiveness that a supply chain has, the more responsive it is. 7-Eleven Japan replenishes its stores with breakfast items in the morning, lunch items in the afternoon, and dinner items at night. As a result, the available product variety changes by time of day. 7-Eleven responds very quickly to orders, with store managers placing replenishment orders less than 12 hours before they are supplied. This practice makes the 7-Eleven supply chain very responsive. The Dell supply chain allows a customer to customize any of several thousand PC configurations. Dell then delivers the appropriate PC to the customer within days. The Dell supply chain would also be considered very responsive. Another example of a responsive supply chain is W. W. Grainger. The company faces both demand and supply uncertainty; therefore, the supply chain has been designed to deal effectively with both. An efficient supply chain, in contrast, lowers cost by eliminating some of its responsive capabilities. For example, Sam's Club sells a limited variety of products in large package sizes. The supply chain is very good at keeping costs down and the focus of this supply chain is clearly on efficiency.

Key Point The second step in achieving strategic fit between competitive and supply chain strategies is to understand the supply chain and map it on the responsiveness spectrum.
Step 3: Achieving Strategic Fit

We have now looked at demand and supply and mapped both to gauge the level of implied uncertainty. We have examined a supply chain to understand where it lies on the responsiveness spectrum. The third and final step in achieving strategic fit is to ensure that what the supply chain does particularly well is consistent with the targeted customer's needs and the uncertainty of the supply chain. The degree of supply chain responsiveness should be consistent with the implied uncertainty.

A useful exercise is to think of the spectrums that we have discussed as two axes on a graph, as shown in Figure 2.5, with implied uncertainty increasing as we move along the horizontal axis (the implied uncertainty spectrum) and responsiveness increasing along the vertical axis (the responsiveness spectrum). This graph is referred to as the uncertainty/responsiveness map. A point in this graph represents a combination of implied uncertainty and supply chain responsiveness. The implied uncertainty represents customer needs or the firm's strategic position and the capability of supply sources. The supply chain's responsiveness represents the supply chain strategy. We can now ask the following question: Which combinations of implied uncertainty and supply chain responsiveness result in strategic fit?

Consider again the example of Dell Computers. For Dell, the competitive strategy targets customers who value having the latest PC models customized to their needs. Further, these customers want the PCs delivered within days. Given the vast variety of PCs, the high level of innovation, and rapid delivery, demand from Dell customers can be characterized as having high demand uncertainty. Some supply uncertainty also exists, especially for newly introduced components. Dell has the option of designing an efficient or responsive supply chain. An efficient supply chain may use slow, inexpensive modes of transportation and economies of scale in production. If Dell made both of these choices, it would have difficulty supporting the customer's desire for rapid delivery and a wide variety of customizable products. Building a responsive supply chain, however, will allow Dell to meet its customers' needs. Therefore, a responsive supply chain strategy is best suited to meet the needs of Dell's targeted customers.

Now, consider a pasta manufacturer like Barilla. Pasta is a product with relatively stable customer demand, giving it a low implied demand uncertainty. Supply is also quite predictable. Barilla could design a highly responsive supply chain in which pasta is custom-made in very small batches in response to customer orders and shipped via a rapid transportation mode such as FedEx. This choice would obviously make the pasta prohibitively expensive, resulting in a loss of customers. Barilla, therefore, is in a much better position if it designs a more efficient supply chain with a focus on cost reduction.

From the preceding discussion, it follows that to achieve strategic fit, the greater the implied uncertainty, the more responsive the supply chain should be. Increasing implied uncertainty from customers and supply sources is best served by increasing responsiveness from the supply chain. This relationship is represented by the "zone of strategic fit" illustrated in Figure 2.6. For a high level of performance, companies should move their competitive strategy (and resulting implied uncertainty) and supply chain strategy (and resulting responsiveness) toward the zone of strategic fit.

To achieve complete strategic fit, a firm must consider all functional strategies within the value chain; it must ensure that all functions in the value chain have consistent strategies that support the competitive strategy as shown in Figure 2.7. All functional strategies must support the goals of the competitive strategy and all substrategies within the supply chain such as manufacturing, inventory, and purchasing must also be consistent with the supply chain's level of responsiveness.
Thus, firms with different locations along the responsiveness spectrum must have different functional strategies that support their responsiveness. A highly responsive supply chain must devote all its functional strategies to responsiveness whereas an efficient supply chain must focus all its functional strategies on efficiency. Table 2.4 lists some of the major differences in functional strategy between supply chains that are efficient and those that are responsive.

**Key Point** The final step in achieving strategic fit is to responsiveness with the implied uncertainty from demand. Functional strategies within the value chain must also support the level of responsiveness.

Changing the strategies to achieve strategic fit may sound easy enough to do, but in reality it can be quite difficult. In later chapters, we discuss many of the obstacles to achieving this fit. Right now, the important points to remember from this discussion are the following:

1. There is no right supply chain strategy independent of the competitive strategy.
2. There is a right supply chain strategy for a given competitive strategy.

The drive for strategic fit should come from the highest levels of the organization. In many companies, different groups devise competitive and functional strategies. Without proper communication between the groups and coordination by high-level management such as the CEO, these strategies are not likely to achieve strategic fit. For many firms, the failure to achieve strategic fit is a key reason for their inability to succeed.
Our previous discussion focused on achieving strategic fit when a firm serves a single market segment and the result is a well-defined strategic position. We now consider how multiple products, multiple customer segments, and product life cycle affect strategic fit.

Multiple Products and Customer Segments

Most companies produce and sell multiple products to multiple customer segments, each with different characteristics. A department store may sell seasonal products such as ski jackets with high implied demand uncertainty along with products such as black socks with low implied demand uncertainty. The demand in each case maps to a different part of the uncertainty spectrum. W. W. Grainger sells MRO products to both large firms like Ford and Boeing and small manufacturers and contractors. The customer needs in the two cases are very different. A large firm is much more likely to be concerned with price given the large volumes they generate from W. W. Grainger, whereas a smaller company is apt to go to W. W. Grainger because it is responsive. The two segments served map to different positions along the implied uncertainty spectrum. Another example is Levi Strauss, which sells both customized and standard-sized jeans. Demand for standard-sized jeans has a much lower demand uncertainty than demand for customized jeans.

In each of the aforementioned examples, the firm sells multiple products and serves customer segments with very different needs. As a result, the different products and segments have different implied demand uncertainty. When devising supply chain strategy in these cases, the key issue for a company is to create a supply chain that balances efficiency and responsiveness given its portfolio of products, customer segments, and supply sources.

There are several possible routes a company can take. One is to set up independent supply chains for each different product or customer segment. This strategy is feasible if each segment is large enough to support a dedicated supply chain. It fails, however, to take advantage of any economies of scope that often exist between a company's different products. Therefore, a preferable strategy is to tailor the supply chain to best meet the needs of each product's demand.

Tailoring the supply chain requires sharing some links in the supply chain with some products, while having separate operations for other links. The links are shared to achieve maximum possible efficiency while providing the appropriate level of responsiveness to each segment. For instance, all products may be made on the same line in a plant, but products requiring a high level of responsiveness may be shipped using a fast mode of transportation such as FedEx. Those products that do not have high responsiveness needs may be shipped by slower and less expensive means such as truck, rail, or even ship. In other instances, products requiring high responsiveness may be manufactured using a very flexible process in response to customer orders, whereas products that require less responsiveness may be manufactured using a less responsive but more efficient process. The mode of transportation used in both cases, however, may be the same. In other cases, some products may be held at regional warehouses close to the customer while others may be held in a centralized warehouse far from the customer. W. W. Grainger holds fast-moving items in its decentralized locations close to the customer. It holds slow-moving items with higher implied demand uncertainty in a centralized warehouse. Appropriate tailoring of the supply chain helps a firm achieve varying levels of responsiveness for a low overall cost. The level of responsiveness is tailored to each product or customer segment. We provide various examples of tailored supply chains in subsequent chapters.

Product Life Cycle

As products go through their life cycle, the demand characteristics and the needs of the customer segments being served change. Supply characteristics also change as the product and production technologies mature. High-tech products are particularly prone to these life cycle swings over a very compressed time span. A product goes through life cycle phases from the introductory phase, when only the leading edge of customers is
interested in it and supply is uncertain, all the way to the point at which the product becomes a commodity, the market is saturated, and supply is predictable. Thus, if a company is to maintain strategic fit, its supply chain strategy must evolve as its products enter different phases.

Let us consider changes in demand and supply characteristics over the life cycle of a product. Toward the beginning stages of a product’s life cycle:

1. Demand is very uncertain and supply may be unpredictable.
2. Margins are often high and time is crucial to gaining sales.
3. Product availability is crucial to capturing the market.
4. Cost is often of secondary consideration.

Consider a pharmaceutical firm introducing a new drug. Initial demand for the drug is highly uncertain, margins are typically very high, and product availability is the key to capturing market share. The introductory phase of a product's life cycle corresponds to high implied uncertainty. In such a situation, responsiveness is the most important characteristic of the supply chain.

As the product becomes a commodity product later in its life cycle, the demand and supply characteristics change. At this stage it is typically the case that:

1. Demand has become more certain and supply is predictable.
2. Margins are lower due to an increase in competitive pressure.
3. Price becomes a significant factor in customer choice.

In the case of the pharmaceutical company, these changes occur when the drug patent expires and generic drugs are introduced. At this stage demand for the drug stabilizes and margins shrink. Customers make their selections from the various choices based on price. Production technologies are well-developed and supply is predictable. This stage corresponds to a low level of implied uncertainty. As a result, the supply chain needs to change. In such a situation, efficiency is the most important characteristic of the supply chain.

This discussion illustrates that as products mature, the corresponding supply chain strategy should, in general, move from being responsive to being efficient, as illustrated in Figure 2.8.

To illustrate these ideas, consider the example of Intel Corporation. Each time Intel introduces a new processor, there is great uncertainty with respect to demand for this new product, as depends on the sales of new high-end PCs. Typically there is high uncertainty regarding how the market will receive these PCs and what the demand will be. Supply is unpredictable because yield is low and variable. At this stage, the Intel supply chain must be very responsive so it can react if demand is very high.

As the Intel processor becomes more mainstream, demand begins to stabilize and yield from the production process is higher and more predictable. At this point demand and supply typically display lower implied uncertainty and price becomes a greater determinant of sales. Now it is important that Intel have an efficient supply chain in place for producing processors.

All PC manufacturers are subject to the cycle described earlier. When a new model is introduced, margins are high, but demand is highly uncertain. In such a situation, a responsive supply chain best serves the PC manufacturer. As the model matures, demand stabilizes and margins shrink. At this stage it is important that the manufacturer have an efficient supply chain. Apple Computer is an example of a firm that had difficulty during product introduction when it introduced the G4 in 1999. Demand for the machine far exceeded the available supply of processors, resulting in significant lost sales. The supply chain in this case did not display sufficient responsiveness during the product's introductory phase.

The key point here is that demand and supply characteristics change over a product’s life cycle. Because demand and supply characteristics change, the supply chain strategy must also change over the product life cycle if a company is to continue achieving strategic fit.

![Figure 2.8 Changes in Supply Chain Strategy Over a Product Life Cycle](image)
Competitive Changes Over Time

A final dimension to consider when matching supply chain and competitive strategy is changes in competitor behavior. Like product life cycles, competitors can change the landscape, thereby requiring a change in the firm's competitive strategy. An example is the growth of mass customization in various industries over the last decade of the 20th century. As competitors flood the marketplace with product variety, customers are becoming accustomed to having their individual needs satisfied. Thus, the competitive focus today is on producing sufficient variety at a reasonable price. As more firms increase the level of variety offered, supply chains have been forced to develop the ability to supply high variety. As the competitive landscape changes, a firm is forced to alter its competitive strategy. With the change in competitive strategy, a firm must also change its supply chain strategy to maintain strategic fit.

Key Point To achieve strategic fit, a firm must tailor its supply chain to best meet the needs of different customer segments. To retain strategic fit, supply chain strategy must be adjusted over the life cycle of a product and as the competitive landscape changes.

In the next section, we describe how the scope of the supply chain has expanded when achieving strategic fit. We also discuss why expanding the scope of strategic fit is critical to supply chain success.

2.3 EXPANDING STRATEGIC SCOPE

A key issue relating to strategic fit is the scope, in terms of supply chain stages, across which the strategic fit applies. Scope of strategic fit refers to the functions and stages that devise an integrated strategy with a shared objective. At one extreme, every operation within each functional area devises its own independent strategy with the objective of optimizing its individual performance. In this case the scope of strategic fit is restricted to an operation in a functional area within a stage of the supply chain. At the opposite extreme, all functional areas within all stages of the supply chain devise strategy jointly with a common objective of maximizing supply chain profit. In this case the scope of strategic fit extends to the entire supply chain.

In this section we discuss how expanding the scope of strategic fit improves supply chain performance. We represent the scope of strategic fit on a two-dimensional grid. Horizontally, the scope of strategic fit is considered across different supply chain stages, starting from suppliers and moving all the way along the chain to the customer. Vertically, the scope is applied to the fit achieved across different functional strategies, competitive, product development, supply chain, and marketing.

Intracompany Intraoperation Scope: The Minimize Local Cost View

The most limited scope over which strategic fit is considered is one operation within a functional area within a company. This is referred to as intracompany intraoperation scope. Here each operation within each stage of the supply chain devises strategy independently. In such a setting, the resulting collection of strategies will most likely not come close to maximizing supply chain profit because different functions and operations have conflicting local objectives. This limited scope was the dominant practice during the 1950s and 1960s when each operation within each stage of the supply chain attempted to minimize its own costs. Consider an example of a distribution company where a transportation operation is evaluated based on average shipping cost per unit. Shipping the product individually costs $5/item whereas shipping by truckload costs only $4/item. To minimize cost, the transportation group ships the product in full trucks as this practice results in the lowest shipping cost per unit. This decision, while minimizing transportation cost per unit, increases response time and may undermine a competitive strategy based on responsiveness. The key point here is that the transportation decision was made independent of the rest of the supply chain both within and outside of the company. In this case, the scope of strategic fit is restricted to a portion (transportation) of the distributor stage within the supply chain. The shaded area in Figure 2.9 represents the scope of strategic fit at the distributor in this instance.

Intracompany Intrafunctional Scope: The Minimize Functional Cost View

Given that many operations together form each function within a firm, managers recognized the weakness of the intracompany intraoperation scope. Supply chain operations include manufacturing, warehousing, and transportation, among others. With the intracompany intrafunctional scope, the strategic fit is expanded to include all operations within a function. In this case, the warehousing manager no longer minimizes warehousing costs while the transportation manager independently minimizes transportation costs. By working together and developing a joint strategy, the two minimize the total functional cost.

Applying the intracompany intrafunctional scope and continuing with the distribution example, managers now look at not just transportation costs, but also warehousing and other supply chain related costs. Although truckload transportation saves the company $4/item, it costs an additional $8/item due to increased inventory and warehousing costs. Therefore, it costs less for the company to ship each item individually because the extra $4 transportation charge saves the company $8 in inventory related costs.

In this case the scope of strategic fit expands to an entire function within a stage of the supply chain. Figure 2.10 shows the intracompany intrafunctional scope as it applies to the supply chain strategy at the distributor.
Intracompany Interfunctional Scope: The Maximize Company Profit View

The key weakness of the intracompany intrafunctional view is that different functions may have conflicting objectives. Over time, companies became aware of this weakness as they saw, for example, marketing and sales focusing on revenue generation and manufacturing and distribution focusing on cost reduction. Actions the two functions took were often in conflict and hurt the firm’s overall performance. Companies realized the importance of expanding the scope of strategic fit across all functions within the firm. With the intracompany interfunctional scope, the goal is to maximize company profit. To achieve this goal, all functional strategies are developed to support both each other and the competitive strategy.

How does this change manifest itself? To return to our example, instead of looking only at the supply chain costs, the company will now look at revenue as well. Although the company had already decided to ship individual units to bring down inventory costs, marketing wanted to increase inventory so the company could take advantage of increased sales as a result of higher service levels. If the revenues and margins gained from holding more inventory outweigh the additional costs, the company should go ahead and increase inventory. The basic point is that both operational and marketing decisions have a revenue and a cost impact. They must thus be coordinated. The intracompany interfunctional scope of strategic fit as it applies to the distributor is shown in Figure 2.11.

Intercompany Interfunctional Scope: The Maximize Supply Chain Surplus View

The intracompany interfunctional scope of strategic fit has two major weaknesses. The first derives from the fact that the only positive cash flow for the supply chain occurs when the end customer pays for the product. All other cash flows are simply a resettling of accounts within the
supply chain and add to supply chain cost. The difference between what the customer pays and the total cost generated across the supply chain represents the supply chain surplus. The supply chain surplus represents the total profit to be shared across all companies in the supply chain. Increasing supply chain surplus increases the amount to be shared among all members of the supply chain. The intracompany interfunctional scope leads to each stage of the supply chain trying to maximize its own profits, which does not necessarily result in the maximization of supply chain surplus. Supply chain surplus is maximized only when all supply chain stages coordinate strategy together. This occurs with the intercompany interfunctional scope in which all stages of the supply chain coordinate strategy across all functions to ensure that together they best meet the customer's needs and maximize supply chain surplus.

<table>
<thead>
<tr>
<th>Suppliers</th>
<th>Manufacturer</th>
<th>Distributor</th>
<th>Retailer</th>
<th>Customer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competitive Strategy</td>
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<tr>
<td>Product Development Strategy</td>
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<tr>
<td>Supply Chain Strategy</td>
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<tr>
<td>Marketing Strategy</td>
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</tbody>
</table>

**FIGURE 2.11** An Example of the Intracompany Interfunctional Scope Strategic Fit at a Data Distributor

The second major weakness of the intracompany scope was noted in the 1990 when speed became a key driver of supply chain success. Today more and more companies are succeeding not because they have the lowest priced product and not because they have the highest quality or best performing product, but because they are able to respond quickly to market needs and get the right product to the right customer at the right time. Companies like Zara, the Spanish apparel retailer, have used speed as their primary competitive advantage to succeed in the marketplace.

This shift toward speed has forced companies to ask what creates the level of speed that customers are demanding. When this question is examined, the answer for most companies lies to a degree within their own boundaries. The most significant delays, however, are created at the interface between the boundaries of different stages of a supply chain. Thus, managing these interfaces becomes a key to providing speed to customers. The intracompany scope restricts strategic attention within each stage of the supply chain, leading to the interfaces being neglected. The intercompany scope forces every stage of the supply chain to look across the supply chain and evaluate the impact of its actions on other stages as well as on the interfaces.

The intercompany interfunctional scope of strategic fit is shown in Figure 2.12.

**Key Point** The intercompany scope of strategic fit is essential today because the competitive playing field has shifted from company versus company to supply chain versus supply chain. A company's partners in the supply chain may well determine the company's success, as the company is intimately tied to its supply chain.

Taking this view requires that each company evaluate its actions in the context of the entire supply chain. This means treating stages in the supply chain that a company does not own as belonging to the company. For example, a major supply chain theme that has received a great deal of press in recent years is the reduction of inventory.
Many companies strive to reduce their own inventories because they assume that the less inventory they have, the better. This assumption has led to a rash of changes in ownership of inventory from stage to stage in the supply chain without necessarily achieving any real reduction in overall inventory. Manufacturers feel that if they force their suppliers to own the parts inventory, they will not have to finance this inventory and therefore their costs will go down. But in many cases, the suppliers simply take ownership of the parts inventory without making any changes in the way this inventory is managed. Because holding this inventory increases the suppliers' costs, they are forced to raise their prices to the manufacturer or lower their margins. In the end, there is no real reduction in total cost because the supply chain merely shifts costs back and forth between its links.

The intercompany interfunctional scope proposes a different approach. Instead of just forcing the inventory on the supplier, who then increases price, the manufacturer and the supplier need to work together to actually reduce the amount of inventory that is required. For example, by sharing demand information with the supplier, the manufacturer can lower the amount of inventory needed in the chain, thus reducing overall cost in the supply chain and making the firms in that supply chain better able to compete.

The intercompany scope will result in a supply chain with greater surplus than the intracompany scope. This result will allow the supply chain to either increase profits by sharing the extra surplus or reduce price by passing along some of the surplus to the customer. Overall, the supply chain will be more competitive if it can achieve the intercompany scope of strategic fit.

**Key Point** The intercompany scope of strategic fit requires firms to evaluate every action in the context of the entire supply chain. This broad scope increases the size of the surplus to be shared among all stages of the supply chain.

**Agile Intercompany Interfunctional Scope**

Up to this point, we have discussed strategic fit in a static context; that is, the players in a supply chain and the customer needs do not change over time. The situation in reality is much more dynamic as product life cycles get shorter and companies try to satisfy the changing needs of individual customers. In such a situation, a company may have to partner with many different firms depending on the product being produced and the customer being served. In such a situation it is crucial that strategic fit have agile intercompany scope.

Agile intercompany scope refers to a firm's ability to achieve strategic fit when partnering with supply chain stages that change over time. Firms must think in terms of supply chains consisting of many players at each stage. For example, a manufacturer may interface with a different set of suppliers and distributors depending on the product being produced and the customer being served. The strategy and operations at firms must be agile enough to maintain strategic fit in a changing environment. Further, as customer needs vary over time, firms must have the ability to become part of new supply chains while ensuring strategic fit. This level of agility becomes more important as the competitive environment becomes more dynamic.

**2.4 SUMMARY OF LEARNING OBJECTIVES**

1. Explain why achieving strategic fit is critical to a company's overall success.

   A lack of strategic fit between the competitive and supply chain strategy can result in the supply chain taking actions that are not consistent with customer needs, leading to a reduction in supply chain surplus and decreasing supply chain profitability. Strategic fit requires that all functions and stages in the supply chain target the same goal, one that is consistent with customer needs.

2. Describe how a company achieves strategic fit between its supply chain strategy and its competitive strategy.
To achieve strategic fit, a company must first understand the needs of the customers being served, understand the uncertainty of the supply chain, and identify the implied uncertainty. The second step is to understand the supply chain's capabilities in terms of efficiency and responsiveness. The key to strategic fit is ensuring that supply chain responsiveness is consistent with customer needs, supply capabilities, and the resulting implied uncertainty.

3. Discuss the importance of expanding the scope of strategic fit across the supply chain.

The scope of strategic fit refers to the functions and stages within a supply chain that coordinate strategy and target a common goal. When the scope is narrow, individual functions try to optimize their performance based on their own goals. This practice often results in conflicting actions that reduce the supply chain surplus. As the scope of strategic fit is enlarged to include the entire supply chain, actions are evaluated based on their impact on overall supply chain performance, which helps increase supply chain surplus.

DISCUSSION QUESTIONS

1. How would you characterize the competitive strategy of a high-end department store chain such as Nordstrom? What are the key customer needs that Nordstrom aims to fill?
2. Where would you place the demand faced by Nordstrom on the implied demand uncertainty spectrum? Why?
3. What level of responsiveness would be most appropriate for Nordstrom's supply chain? What should the supply chain be able to do particularly well?
4. How can Nordstrom expand the scope of strategic fit across its supply chain?
5. Reconsider the previous four questions for other companies such as Amazon, a supermarket chain, an auto manufacturer, and a discount retailer such as Wal-Mart.
6. Give arguments to support the statement that Wal-Mart has achieved very good strategic fit between its competitive and supply chain strategies.

BIBLIOGRAPHY