

Google has been extremely successful, first in the Internet search engine market and later in related markets. What, if anything, about Google's resources and capabilities make it likely that this firm will be able to continue its success? The ideas presented in this chapter help answer this question.

## The Resource-Based View of the Firm

In Chapter 2, we saw that it was possible to take some theoretical models developed in economics—specifically the structure-conduct-performance (S-C-P) model—and apply them to develop tools for analyzing a firm's external threats and opportunities. The same is true for analyzing a firm's internal strengths and weaknesses. However, whereas the tools described in Chapter 2 were based on the S-C-P model, the tools described in this chapter are based on the **resource-based view (RBV)** of the firm. The RBV is a model of firm performance that focuses on the resources and capabilities controlled by a firm as sources of competitive advantage.<sup>1</sup>

### What Are Resources and Capabilities?

**Resources** in the RBV are defined as the tangible and intangible assets that a firm controls that it can use to conceive and implement its strategies. Examples of resources include a firm's factories (a tangible asset), its products (a tangible asset), its reputation among customers (an intangible asset), and **teamwork among its managers (an intangible asset)**. eBay's tangible assets include its Web site and associated software. Its intangible assets include its brand name in the auction business.

**Capabilities** are a subset of a firm's resources and are defined as the tangible and intangible assets that enable a firm to take full advantage of the other resources it controls. That is, capabilities alone do not enable a firm to conceive and implement its strategies, but they enable a firm to use other resources to conceive and implement such strategies. Examples of capabilities might include a firm's marketing skills and **teamwork and cooperation among its managers**. At eBay, the cooperation among software developers and marketing people that made it possible for eBay to dominate the online auction market is an example of a capability.

A firm's resources and capabilities can be classified into four broad categories: **financial resources**, **physical resources**, **individual resources**, and **organizational resources**. **Financial resources** include all the money, from whatever source, that firms use to conceive and implement strategies. These financial resources include cash from entrepreneurs, equity holders, bondholders, and banks. **Retained earnings**, or the profit that a firm made earlier in its history and invests in itself, are also an important type of financial resource.

**Physical resources** include all the physical technology used in a firm. This includes a firm's plant and equipment, its geographic location, and its access to raw materials. Specific examples of plant and equipment that are part of a firm's physical resources are a firm's computer hardware and software technology, robots used in manufacturing, and automated warehouses. Geographic location, as a type of physical resource, is important for firms as diverse as Wal-Mart (with its operations in rural markets generating, on average, higher returns than its operations in more competitive urban markets) and L. L. Bean (a catalogue retail firm that believes that its rural Maine location helps its employees identify with the outdoor lifestyle of many of its customers).<sup>2</sup>

**Human resources** include the training, experience, judgment, intelligence, relationships, and insight of *individual* managers and workers in a firm.<sup>3</sup> The importance

'combined'



of the human resources of well-known entrepreneurs such as Bill Gates (Microsoft) and Steve Jobs (formerly at Apple) is broadly understood. However, valuable human resources are not limited to just entrepreneurs or senior managers. Each employee at a firm like Southwest Airlines is seen as essential for the overall success of the firm. Whether it is the willingness of the gate agent to joke with the harried traveler, or a baggage handler hustling to get a passenger's bag into a plane, or even a pilot's decision to fly in a way that saves fuel—all of these human resources are part of the resource base that has enabled Southwest to gain competitive advantages in the very competitive U.S. airline industry.<sup>4</sup>

Whereas human resources are an attribute of single individuals, **organizational resources** are an attribute of groups of individuals. Organizational resources include a firm's formal reporting structure; its formal and informal planning, controlling, and coordinating systems; its culture and reputation; and informal relations among groups within a firm and between a firm and those in its environment. At Southwest Airlines, relationships among individual resources are an important organizational resource. For example, it is not unusual to see the pilots at Southwest helping to load the bags on an airplane to ensure that the plane leaves on time. This kind of cooperation and dedication shows up in an intense loyalty between Southwest employees and the firm—a loyalty that manifests itself in low employee turnover and high employee productivity, even though more than 80 percent of Southwest's workforce is unionized.

### Critical Assumptions of the Resource-Based View

The RBV rests on two fundamental assumptions about the resources and capabilities that firms may control. First, different firms may possess different bundles of resources and capabilities, even if they are competing in the same industry. This is the assumption of firm **resource heterogeneity**. Resource heterogeneity implies that for a given business activity, some firms may be more skilled in accomplishing this activity than other firms. In manufacturing, for example, Toyota continues to be more skilled than, say, General Motors. In product design, Apple continues to be more skilled than, say, IBM. In motorcycles, Harley Davidson's reputation for big, bad, and loud rides separates it from its competitors.

Second, some of these resource and capability differences among firms may be long lasting because it may be very costly for firms without certain resources and capabilities to develop or acquire them. This is the assumption of **resource immobility**. For example, Toyota has had its advantage in manufacturing for at least 30 years. Apple has had product design advantages over IBM since Apple was founded in the 1980s. And eBay has been able to retain its brand reputation since the beginning of the online auction industry. It is not that GM, IBM, and eBay's competitors are unaware of their disadvantages. Indeed, some of these firms—notably GM and IBM—have made progress in addressing their disadvantages. However, despite these efforts, Toyota, Apple, and, to a lesser extent, eBay continue to enjoy advantages over their competition.

Taken together, these two assumptions make it possible to explain why some firms outperform other firms, even if these firms are all competing in the same industry. If a firm possesses valuable resources and capabilities that few other firms possess and if these other firms find it too costly to imitate these resources and capabilities, the firm that possesses these tangible and intangible assets can gain a sustained competitive advantage. The economic logic that underlies the RBV is described in more detail in the Strategy in Depth feature.

## Strategy in Depth

The theoretical roots of the resource-based view can be traced to research done by David Ricardo in 1817. Interestingly, Ricardo was not even studying the profitability of firms; he was interested in the economic consequences of owning more or less fertile farm land.

Unlike many other inputs into the production process, the total supply of land is relatively fixed and cannot be significantly increased in response to higher demand and prices. Such inputs are said to be **inelastic in supply** because their quantity of supply is fixed and does not respond to price increases. In these settings, it is possible for those who own higher-quality inputs to gain competitive advantages.

Ricardo's argument concerning land as a productive input is summarized in Figure 3.1. Imagine that there are many parcels of land suitable for growing wheat. Also, suppose that the fertility of these different parcels varies from high fertility (low costs of production) to low fertility (high costs of production). It seems obvious that when the market price for wheat is low, it will only pay farmers with the most fertile land to grow wheat. Only these farmers will have costs low enough to make money when the market price



**Ricardian Economics and the Resource-Based View**

for wheat is low. As the market price for wheat increases, then farmers with progressively less fertile land will be able to use it to grow wheat. These observations lead to the market supply curve in panel A of Figure 3.1: As prices ( $P$ ) go up, supply ( $S$ ) also goes up. At some point on this supply curve, supply will equal demand ( $D$ ). This point determines the market price for wheat, given supply and demand. This price is called  $P^*$  in the figure.

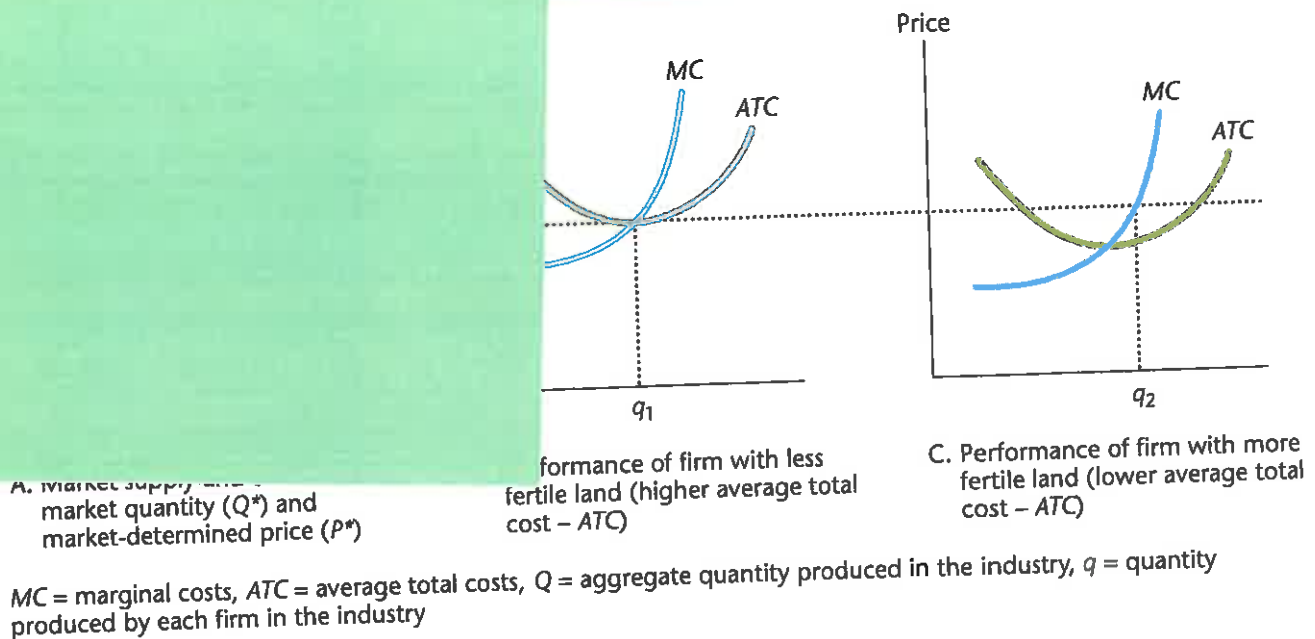
Now consider the situation facing two different kinds of farmers. Ricardo assumed that both these farmers follow traditional economic logic by producing a quantity ( $q$ ) such that their marginal cost ( $MC$ ) equals their marginal revenue

( $MR$ ); that is, they produce enough wheat so that the cost of producing the last bushel of wheat equals the revenue they will get from selling that last bushel. However, this decision for the farm with less fertile land (in panel B of the figure) generates revenues that exactly equal the average total cost ( $ATC$ ) of the only capital this farmer is assumed to employ, the cost of his land. In contrast, the farmer with more fertile land (in panel C of the figure) has an average total cost ( $ATC$ ) less than the market-determined price and thus is able to earn an above-normal economic profit. This is because at the market-determined price,  $P^*$ ,  $MC$  equals  $ATC$  for the farmer with less fertile land, whereas  $MC$  is greater than  $ATC$  for the farmer with more fertile land.

In traditional economic analysis, the profit earned by the farmer with more fertile land should lead other farmers to enter into this market, that is, to obtain some land and produce wheat. However, all the land that can be used to produce wheat in a way that generates at least a normal return given the market price  $P^*$  is already in production. In particular, no more very fertile land is available, and fertile land (by assumption) cannot be created. This is what is

## The VRIO Framework

Armed with the RBV, it is possible to develop a set of tools for analyzing all the different resources and capabilities a firm might possess and the potential of each of these to generate competitive advantages. In this way, it will be possible to identify a firm's internal strengths and its internal weaknesses. The primary tool for accomplishing this internal analysis is called the VRIO framework.<sup>5</sup> The acronym, **VRIO**, in **VRIO framework** stands for four questions one must ask about a resource or capability to determine its competitive potential: the question of Value, the question of Rarity, the question of Imitability, and the question of Organization. These four questions are summarized in Table 3.1.



**Figure 3.1**  
The Economics of Land with Different Levels of Fertility

meant by land being inelastic in supply. Thus, the farmer with more fertile land and lower production costs has a sustained competitive advantage over those farmers with less fertile land and higher production costs. Therefore, the farmer with the more fertile land is able to earn an above-normal economic profit.

Of course, at least two events can threaten this sustained competitive advantage. First, market demand may shift down and to the left. This would force farmers with less fertile land to

cease production and would also reduce the profit of those with more fertile land. If demand shifted far enough, this profit might disappear altogether.

Second, farmers with less fertile land may discover low-cost ways of increasing their land's fertility, thereby reducing the competitive advantage of farmers with more fertile land. For example, farmers with less fertile land may be able to use inexpensive fertilizers to increase their land's fertility. The existence of such low-cost fertilizers suggests that, although land may be

in fixed supply, fertility may not be enough for farmers to increase the profitability of their land, then the profits normally earned by the farmers with more fertile land will disappear.

Of course, what the RBV does recognize is that land is not the only productive input that is inelastic in supply and that farmers are not the only ones that benefit from having such resources at their disposal.

Source: D. Ricardo (1817). *Principles of political economy and taxation*. London: J. Murray.

## The Question of Value

The **question of value** is: "Do resources and capabilities enable a firm to exploit an external opportunity or neutralize an external threat?" If a firm answers this question with a "yes," then its resources and capabilities are valuable and can be considered *strengths*. If a firm answers this question with a "no," its resources and capabilities are *weaknesses*. There is nothing inherently valuable about a firm's resources and capabilities. Rather, they are only valuable to the extent that they enable a firm to enhance its competitive position. Sometimes, the same resources and capabilities can be strengths in one market and weaknesses in another.

**TABLE 3.1** Questions Needed  
to Conduct a Resource-Based  
Analysis of a Firm's Internal  
Strengths and Weaknesses

1. *The Question of Value.* Does a resource enable a firm to exploit an environmental opportunity and/or neutralize an environmental threat?
2. *The Question of Rarity.* Is a resource currently controlled by only a small number of competing firms?
3. *The Question of Imitability.* Do firms without a resource face a cost disadvantage in obtaining or developing it?
4. *The Question of Organization.* Are a firm's other policies and procedures organized to support the exploitation of its valuable, rare, and costly-to-imitate resources?

### Valuable Resources and Firm Performance

Sometimes it is difficult to know for sure whether a firm's resources and capabilities really enable it to exploit its external opportunities or neutralize its external threats. Sometimes this requires detailed operational information that may not be readily available. Other times, the full impact of a firm's resources and capabilities on its external opportunities and threats may not be known for some time.

One way to track the impact of a firm's resources and capabilities on its opportunities and threats is to examine the impact of using these resources and capabilities on a firm's revenues and costs. In general, firms that use their resources and capabilities to exploit opportunities or neutralize threats will see an increase in their net revenues, or a decrease in their net costs, or both, compared to the situation in which they were not using these resources and capabilities to exploit opportunities or neutralize threats. That is, the value of these resources and capabilities will generally manifest itself in either higher revenues or lower costs or both, once a firm starts using them to exploit opportunities or neutralize threats.

### Applying the Question of Value

For many firms, the answer to the question of value has been "yes." That is, many firms have resources and capabilities that are used to exploit opportunities and neutralize threats, and the use of these resources and capabilities enables these firms to increase their net revenues or decrease their net costs. For example, historically Sony had a great deal of experience in designing, manufacturing, and selling miniaturized electronic technology. Sony used these resources and capabilities to exploit opportunities, including video games, digital cameras, computers and peripherals, handheld computers, home video and audio, portable audio, and car audio. 3M has used its resources and capabilities in substrates, coatings, and adhesives, along with an organizational culture that rewards risk-taking and creativity, to exploit opportunities in office products, including invisible tape and Post-It notes. Sony's and 3M's resources and capabilities—including their specific technological skills and their creative organizational cultures—have made it possible for these firms to respond to, and even create, new opportunities.<sup>6</sup>

Unfortunately, for other firms the answer to the question of value appears to be "no." The merger of AOL and Time Warner was supposed to create a new kind of entertainment and media company; it is now widely recognized that Time Warner has been unable to marshal the resources necessary to create economic value. Time Warner wrote off \$90 billion in value in 2002; its stock price has been at record lows, and there have been rumors that it will be broken up. Ironically, many of the segments of this diverse media conglomerate continue to create value. However, the company as a whole has not realized the synergies that it was expected to generate when it was created. Put differently, these synergies—as resources and capabilities—are apparently not valuable.<sup>7</sup>

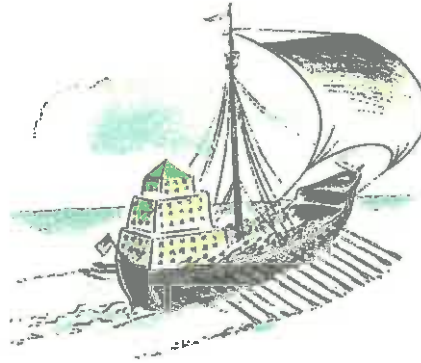
## Strategy in the Emerging Enterprise

Entrepreneurial firms, like all other firms, must be able to answer "yes" to the question of value. That is, decisions by entrepreneurs to organize a firm to exploit an opportunity must increase revenues or reduce costs beyond what would be the case if they did not choose to organize a firm to exploit an opportunity.

However, entrepreneurs often find it difficult to answer the question of value before they actually organize a firm and try to exploit an opportunity. This is because the impact of exploiting an opportunity on a firm's revenues and costs often cannot be known, with certainty, before that opportunity is exploited.

Despite these challenges, entrepreneurs often are required to not only estimate the value of any opportunities they are thinking about exploiting, but to do so in some detail and in a written form. Projections about how organizing a firm to exploit an opportunity will affect a firm's revenues and costs are often the centerpiece of an entrepreneur's **business plan**—a document that summarizes how an entrepreneur will organize a firm to exploit an opportunity, along with the economic implications of exploiting that opportunity.

Two schools of thought exist as to the value of entrepreneurs writing business plans. On the one hand, some authors argue that writing a business plan is likely to be helpful for entrepreneurs because



### Are Business Plans Good for Entrepreneurs?

it forces them to be explicit about their assumptions, exposes those assumptions to others for critique and analysis, and helps entrepreneurs focus their efforts on building a new organization and exploiting an opportunity. On the other hand, other authors argue that writing a business plan may actually hurt an entrepreneur's performance because writing such a plan may divert an entrepreneur's attention from more important activities, may give entrepreneurs the illusion that they have more control of their business than they actually do, and may lead to decision-making errors.

Research supports both points of view. Scott Shane and Frederic Delmar have shown that writing a business plan significantly enhances the probability that an entrepreneurial firm will survive. In contrast, Amar Bhidé shows that most entrepreneurs go through many different business plans

before they land on one that describes a business opportunity that actually supports. For Bhidé, writing the business plan is, at best, a means of helping to create a new opportunity. Because most business plans are abandoned soon after they are written, writing business plans has little value.

One way to resolve the conflicts among these scholars is to accept that writing a business plan may be very useful in some settings and not so useful in others. In particular, when it is possible for entrepreneurs to collect sufficient information about a potential market opportunity to be able to describe the probabilities of different outcomes associated with exploiting that opportunity—a situation described as *risky* in the entrepreneurship literature—business planning may be very helpful. However, when information cannot be collected—then writing a business plan would be of only little value, and its disadvantages outweigh any advantages it might create.

**Sources:** S. Shane and F. Delmar (2004). "Testing for the market: Business planning before investing and the continuation of organizing." *Journal of Business Venturing*, 19, pp. 1-20. A. Bhidé (2000). *The origin and evolution of businesses*. New York: Oxford. F. H. Knight (1983). *Risk, uncertainty, and profit*. Chicago: University of Chicago Press. S. Alvarez and J. Barney (2005). "Discovery and creation: Alternative perspectives in the field of entrepreneurship." *Entrepreneurship Journal*, 1(1), pp. 11-26.

### Using Value Chain Analysis to Identify Potentially Valuable Resources and Capabilities

One way to identify potentially valuable resources and capabilities controlled by a firm is to study that firm's value chain. A firm's **value chain** is the set of business activities in which it engages to develop, produce, and market its products or

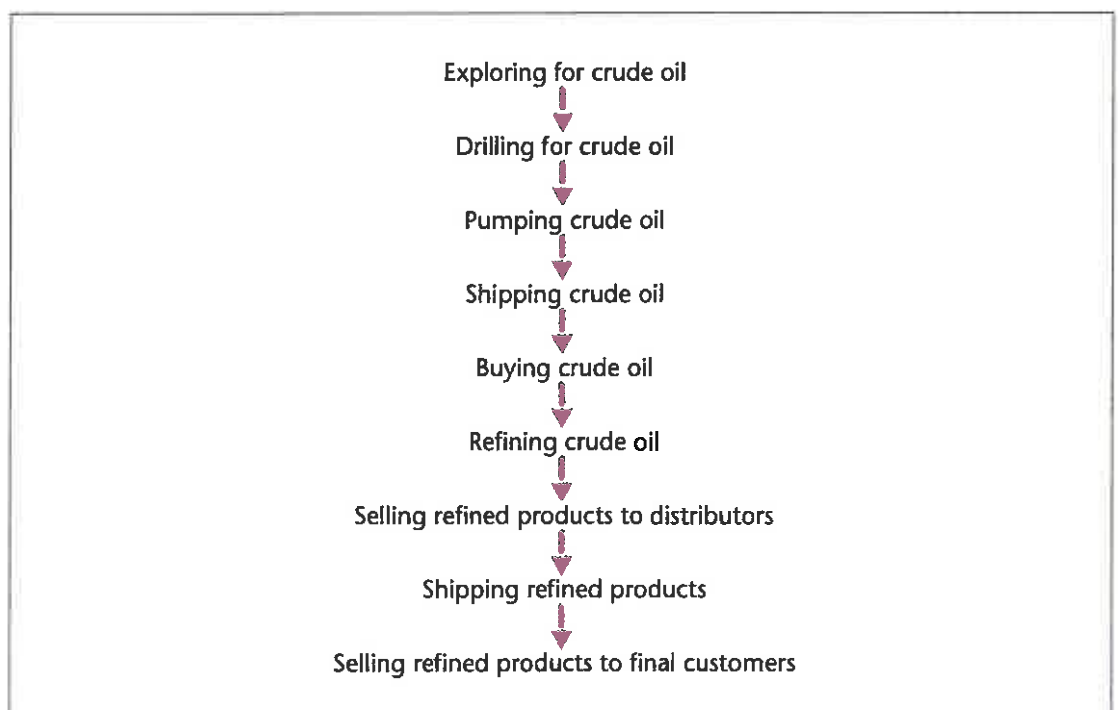
services. Each step in a firm's value chain requires the application and integration of different resources and capabilities. Because different firms may make different choices about which value chain activities they will engage in, they can end up developing different sets of resources and capabilities. This can be the case even if these firms are all operating in the same industry. These choices can have implications for a firm's strategies, and, as described in the Ethics and Strategy feature, they can also have implications for society more generally.

Consider, for example, the oil industry. Figure 3.2 provides a simplified list of all the business activities that must be completed if crude oil is to be turned into consumer products, such as gasoline. These activities include exploring for crude oil, drilling for crude oil, pumping crude oil, shipping crude oil, buying crude oil, refining crude oil, selling refined products to distributors, shipping refined products, and selling refined products to final customers.

Different firms may make different choices about which of these stages in the oil industry they want to operate. Thus, the firms in the oil industry may have very different resources and capabilities. For example, exploring for crude oil is very expensive and requires substantial financial resources. It also requires access to land (a physical resource), the application of substantial scientific and technical knowledge (individual resources), and an organizational commitment to risk-taking and exploration (organizational resources). Firms that operate in this stage of the oil business are likely to have very different resources and capabilities than those that, for example, sell refined oil products to final customers. To be successful in the retail stage of this industry, a firm needs retail outlets (such as stores and gas stations), which are costly to build and require both financial and physical resources. These outlets, in turn, need to be staffed by salespeople—individual resources—and marketing these products to customers through advertisements and other means can require a commitment to creativity—an organizational resource.

However, even firms that operate in the same set of value chain activities in an industry may approach these activities very differently and therefore may

**Figure 3.2** A Simplified Value Chain of Activities of Oil-Based Refined Products such as Gasoline and Motor Oil



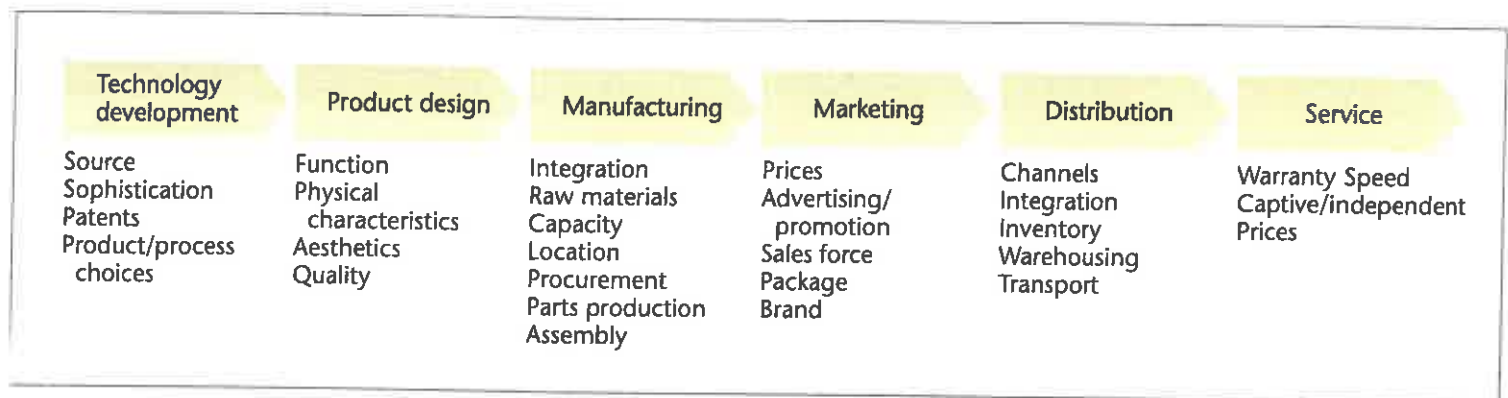


Figure 3.3

The Generic Value Chain Developed by McKinsey and Company

develop very different resources and capabilities associated with these activities. For example, two firms may sell refined oil products to final customers. However, one of these firms may sell only through retail outlets it owns, whereas the second may sell only through retail outlets it does not own. The first firm's financial and physical resources are likely to be very different from the second firm's, although these two firms may have similar individual and organizational resources.

Studying a firm's value chain forces us to think about firm resources and capabilities in a disaggregated way. Although it is possible to characterize a firm's resources and capabilities more broadly, it is usually more helpful to think about how each of the activities a firm engages in affects its financial, physical, individual, and organizational resources. With this understanding, it is possible to begin to recognize potential sources of competitive advantage for a firm in a much more detailed way.

Because this type of analysis can be so helpful in identifying the financial, physical, individual, and organizational resources and capabilities controlled by a firm, several generic value chains for identifying them have been developed. One of these, proposed by the management-consulting firm McKinsey and Company, is presented in Figure 3.3.<sup>8</sup> This relatively simple model suggests that the creation of value almost always involves six distinct activities: technology development, product design, manufacturing, marketing, distribution, and service. Firms can develop distinctive capabilities in any one or any combination of these activities.

### The Question of Rarity

Understanding the value of a firm's resources and capabilities is an important first consideration in understanding a firm's internal strengths and weaknesses. However, if a particular resource or capability is controlled by numerous competing firms, then that resource is unlikely to be a source of competitive advantage for any one of them. Instead, valuable but common (i.e., not rare) resources and capabilities are sources of competitive parity. Only when a resource is not controlled by numerous other firms is it likely to be a source of competitive advantage. These observations lead to the **question of rarity**: "How many competing firms already possess particular valuable resources and capabilities?"

Consider, for example, competition among television sports channels. All the major networks broadcast sports. In addition, several sports-only cable

channels are available, including the best-known all-sports channel, ESPN. Several years ago, ESPN began televising what were then called alternative sports—skateboarding, snowboarding, mountain biking, and so forth. The surprising popularity of these programs led ESPN to package them into an annual competition called the “X-Games.” “X” stands for “extreme,” and ESPN has definitely gone to the extreme in including sports in the X-Games. The X-Games have included sports such as sky-surfing, competitive high diving, competitive bungee cord jumping, and so forth. ESPN broadcasts both a summer X-Games and a winter X-Games. No other sports outlet has yet made such a commitment to so-called extreme sports, and it has paid handsome dividends for ESPN—extreme sports have very low-cost broadcast rights and draw a fairly large audience. This commitment to extreme sports—as an example of a valuable and rare capability—has been a source of at least a temporary competitive advantage for ESPN.

Of course, not all of a firm's resources and capabilities have to be valuable and rare. Indeed, most firms have a resource base that is composed primarily of valuable but common resources and capabilities. These resources cannot be sources of even temporary competitive advantage, but are essential if a firm is to gain competitive parity. Under conditions of competitive parity, although no one firm gains a competitive advantage, firms do increase their probability of survival.

Consider, for example, a telephone system as a resource or capability. Because telephone systems are widely available and because virtually all organizations have access to telephone systems, these systems are not rare and thus are not a source of competitive advantage. However, firms that do not possess a telephone system are likely to give their competitors an important advantage and place themselves at a competitive disadvantage.

How rare a valuable resource or capability must be in order to have the potential for generating a competitive advantage varies from situation to situation. It is not difficult to see that, if a firm's valuable resources and capabilities are absolutely unique among a set of current and potential competitors, they can generate a competitive advantage. However, it may be possible for a small number of firms in an industry to possess a particular valuable resource or capability and still obtain a competitive advantage. In general, as long as the number of firms that possess a particular valuable resource or capability is less than the number of firms needed to generate perfect competition dynamics in an industry, that resource or capability can be considered rare and a potential source of competitive advantage.

### The Question of Imitability

Firms with valuable and rare resources are often strategic innovators because they are able to conceive and engage in strategies that other firms cannot because they lack the relevant resources and capabilities. These firms may gain the first-mover advantages discussed in Chapter 2.

Valuable and rare organizational resources, however, can be sources of sustained competitive advantage only if firms that do not possess them face a cost disadvantage in obtaining or developing them, compared to firms that already possess them. These kinds of resources are **imperfectly imitable**.<sup>9</sup> These observations lead to the **question of imitability**: “Do firms without a resource or capability face a cost disadvantage in obtaining or developing it compared to firms that already possess it?”

Imagine an industry with five essentially identical firms. Each of these firms manufactures the same products, uses the same raw materials, and sells the products to the same customers through the same distribution channels. It is not hard to see that firms in this kind of industry will have normal economic performance. Now, suppose that one of these firms, for whatever reason, discovers or develops a heretofore unrecognized valuable resource and uses that resource either to exploit an external opportunity or to neutralize an external threat. Obviously, this firm will gain a competitive advantage over the others.

This firm's competitors can respond to this competitive advantage in at least two ways. First, they can ignore the success of this one firm and continue as before. This action, of course, will put them at a competitive disadvantage. Second, these firms can attempt to understand why this one firm is able to be successful and then duplicate its resources to implement a similar strategy. If competitors have no cost disadvantages in acquiring or developing the needed resources, then this imitative approach will generate competitive parity in the industry.

Sometimes, however, for reasons that will be discussed later, competing firms may face an important cost disadvantage in duplicating a successful firm's valuable resources. If this is the case, this one innovative firm may gain a sustained competitive advantage—an advantage that is not competed away through strategic imitation. Firms that possess and exploit costly-to-imitate, rare, and valuable resources in choosing and implementing their strategies may enjoy a period of sustained competitive advantage.<sup>10</sup>

For example, other sports networks have observed the success of ESPN's X-Games and are beginning to broadcast similar competitions. NBC, for example, developed its own version of the X-Games, called the "Gravity Games," and even the Olympics now include sports that were previously perceived as being "too extreme" for this mainline sports competition. Several Fox sports channels broadcast programs that feature extreme sports, and at least one new cable channel (Fuel) broadcasts only extreme sports. Fuel was recently acquired by Fox to provide another outlet for extreme sports on a Fox channel. Whether these efforts will be able to attract the competitors that the X-Games attract, whether winners at these other competitions will gain as much status in their sports as do winners of the X-Games, and whether these other competitions and programs will gain the reputation among viewers enjoyed by ESPN will go a long way to determining whether ESPN's competitive advantage in extreme sports is temporary or sustained.<sup>11</sup>

### Forms of Imitation: Direct Duplication and Substitution

In general, imitation occurs in one of two ways: **direct duplication** or **substitution**. Imitating firms can attempt to directly duplicate the resources possessed by the firm with a competitive advantage. Thus, NBC sponsoring an alternative extreme games competition can be thought of as an effort to directly duplicate the resources that enabled ESPN's X-Games to be successful. If the cost of this direct duplication is too high, then a firm with these resources and capabilities may obtain a sustained competitive advantage. If this cost is not too high, then any competitive advantages in this setting will be temporary.

Imitating firms can also attempt to substitute other resources for a costly-to-imitate resource possessed by a firm with a competitive advantage. Extreme sports shows and an extreme sports cable channel are potential substitutes for ESPN's X-Games strategy. These shows appeal to much the same audience as the X-Games, but they do not require the same resources as an X-Games strategy

requires (i.e., because they are not competitions, they do not require the network to bring together a large number of athletes all at once). If substitute resources exist and if imitating firms do not face a cost disadvantage in obtaining them, then the competitive advantage of other firms will be temporary. However, if these resources have no substitutes or if the cost of acquiring these substitutes is greater than the cost of obtaining the original resources, then competitive advantages can be sustained.

### Why Might It Be Costly to Imitate Another Firm's Resources or Capabilities?

A number of authors have studied why it might be costly for one firm to imitate the resources and capabilities of another. Four sources of costly imitation have been noted.<sup>12</sup> They are summarized in Table 3.2 and discussed in the following text.

**Unique Historical Conditions.** It may be the case that a firm was able to acquire or develop its resources and capabilities in a low-cost manner because of its unique historical conditions. The ability of firms to acquire, develop, and use resources often depends on their place in time and space. Once time and history pass, firms that do not have space-and-time-dependent resources face a significant cost disadvantage in obtaining and developing them because doing so would require them to re-create history.<sup>13</sup>

ESPN's early commitment to extreme sports is an example of these unique historical conditions. The status and reputation of the X-Games were created because ESPN happened to be the first major sports outlet that took these competitions seriously. The X-Games became the most important competition in many of these extreme sports. Indeed, for snowboarders, winning a gold medal in the X-Games is almost as important as—if not more important than—winning a gold medal in the Winter Olympics. Other sports outlets that hope to be able to compete with the X-Games will have to overcome both the status of ESPN as “the worldwide leader in sports” and its historical advantage in extreme sports. Overcoming these advantages is likely to be costly, making competitive threats from direct duplication, at least, less significant.

Of course, firms can also act to increase the costliness of imitating the resources and capabilities they control. ESPN is doing this by expanding its

**TABLE 3.2** Sources of Costly Imitation

**Unique Historical Conditions.** When a firm gains low-cost access to resources because of its place in time and space, other firms may find these resources to be costly to imitate. Both first-mover advantages and path dependence can create unique historical conditions.

**Causal Ambiguity.** When competitors cannot tell, for sure, what enables a firm to gain an advantage, that advantage may be costly to imitate. Sources of causal ambiguity include when competitive advantages are based on “taken-for-granted” resources and capabilities, when multiple non-testable hypotheses exist about why a firm has a competitive advantage, and when a firm's advantages are based on complex sets of interrelated capabilities.

**Social Complexity.** When the resources and capabilities a firm uses to gain a competitive advantage involve interpersonal relationships, trust, culture, and other social resources that are costly to imitate in the short term.

**Patents.** Only a source of sustained competitive advantage in a few industries, including pharmaceuticals and specialty chemicals.

coverage of extreme sports and by engaging in a "grassroots" marketing campaign that engages young "extreme athletes" in local competitions. The purpose of these efforts is clear: to keep ESPN's status as the most important source of extreme sports competitions intact.<sup>14</sup>

Unique historical circumstances can give a firm a sustained competitive advantage in at least two ways. First, it may be that a particular firm was the first in an industry to recognize and exploit an opportunity, and being first gave the firm one or more of the first-mover advantages discussed in Chapter 2. Thus, although in principle other firms in an industry could have exploited an opportunity, that only one firm did so makes it more costly for other firms to imitate the original firm.

A second way that history can have an impact on a firm builds on the concept of **path dependence**.<sup>15</sup> A process is said to be path dependent when events early in the evolution of a process have significant effects on subsequent events. In the evolution of competitive advantage, path dependence suggests that a firm may gain a competitive advantage in the current period based on the acquisition and development of resources in earlier periods. In these earlier periods, it is often not clear what the full future value of particular resources will be. Because of this uncertainty, firms are able to acquire or develop these resources for less than what will turn out to be their full value. However, once the full value of these resources is revealed, other firms seeking to acquire or develop these resources will need to pay their full known value, which (in general) will be greater than the costs incurred by the firm that acquired or developed these resources in some earlier period. The cost of acquiring both duplicate and substitute resources would rise once their full value became known.

Consider, for example, a firm that purchased land for ranching some time ago and discovered a rich supply of oil on this land in the current period. The difference between the value of this land as a supplier of oil (high) and the value of this land for ranching (low) is a source of competitive advantage for this firm. Moreover, other firms attempting to acquire this or adjacent land will now have to pay for the full value of the land in its use as a supply of oil (high) and thus will be at a cost disadvantage compared to the firm that acquired it some time ago for ranching.

**Causal Ambiguity.** A second reason why a firm's resources and capabilities may be costly to imitate is that imitating firms may not understand the relationship between the resources and capabilities controlled by a firm and that firm's competitive advantage. In other words, the relationship between firm resources and capabilities and competitive advantage may be **causally ambiguous**.

At first, it seems unlikely that causal ambiguity about the sources of competitive advantage for a firm would ever exist. Managers in a firm seem likely to understand the sources of their own competitive advantage. If managers in one firm understand the relationship between resources and competitive advantage, then it seems likely that managers in other firms would also be able to discover these relationships and thus would have a clear understanding of which resources and capabilities they should duplicate or seek substitutes for. If there are no other sources of cost disadvantage for imitating firms, imitation should lead to competitive parity and normal economic performance.<sup>16</sup>

However, it is not always the case that managers in a particular firm will fully understand the relationship between the resources and capabilities they control and competitive advantage. This lack of understanding could occur for at least three reasons. First, it may be that the resources and capabilities that

generate competitive advantage are so taken for granted, so much a part of the day-to-day experience of managers in a firm, that these managers are unaware of them.<sup>17</sup> Organizational resources and capabilities such as teamwork among top managers, organizational culture, relationships among other employees, and relationships with customers and suppliers may be almost "invisible" to managers in a firm.<sup>18</sup> If managers in firms that have such capabilities do not understand their relationship to competitive advantage, managers in other firms face significant challenges in understanding which resources they should imitate.

Second, managers may have multiple hypotheses about which resources and capabilities enable their firm to gain a competitive advantage, but they may be unable to evaluate which of these resources and capabilities, alone or in combination, actually create the competitive advantage. For example, if one asks successful entrepreneurs what enabled them to be successful, they are likely to reply with several hypotheses, such as "hard work, willingness to take risks, and a high-quality top management team." However, if one asks what happened to unsuccessful entrepreneurs, they, too, are likely to suggest that their firms were characterized by "hard work, willingness to take risks, and a high-quality top management team." It may be the case that "hard work, willingness to take risks, and a high-quality top management team" are important resources and capabilities for entrepreneurial firm success, but other factors may also play a role. Without rigorous experiments, it is difficult to establish which of these resources have a causal relationship with competitive advantage and which do not.

Finally, it may be that not just a few resources and capabilities enable a firm to gain a competitive advantage, but that literally thousands of these organizational attributes, bundled together, generate these advantages. When the resources and capabilities that generate competitive advantage are complex networks of relationships between individuals, groups, and technology, imitation can be costly.

Whenever the sources of competitive advantage are widely diffused across people, locations, and processes in a firm, those sources will be costly to imitate. Perhaps the best example of such a resource is knowledge itself. To the extent that valuable knowledge about a firm's products, processes, customers, and so on is widely diffused throughout an organization, competitors will have difficulty imitating that knowledge, and it can be a source of sustained competitive advantage.<sup>19</sup>

**Social Complexity.** A third reason that a firm's resources and capabilities may be costly to imitate is that they may be socially complex phenomena, beyond the ability of firms to systematically manage and influence. When competitive advantages are based on such complex social phenomena, the ability of other firms to imitate these resources and capabilities, either through direct duplication or substitution, is significantly constrained. Efforts to influence these kinds of phenomena are likely to be much more costly than they would be if these phenomena developed in a natural way over time in a firm.<sup>20</sup>

A wide variety of firm resources and capabilities may be socially complex. Examples include the interpersonal relations among managers in a firm, a firm's culture, and a firm's reputation among suppliers and customers.<sup>21</sup> Notice that in most of these cases it is possible to specify how these socially complex resources add value to a firm. Thus, there is little or no causal ambiguity surrounding the link between these firm resources and capabilities and competitive advantage. However, understanding that an organizational culture with certain attributes or

## Part 1: The Tools of Strategic Analysis

quality relations among managers can improve a firm's efficiency and effectiveness does not necessarily imply that firms lacking these attributes can engage in systematic efforts to create them or that low-cost substitutes for them exist. For the time being, such social engineering may be beyond the abilities of most firms. At the very least, such social engineering is likely to be much more costly than it would be if socially complex resources evolved naturally within a firm.<sup>22</sup>

It is interesting to note that firms seeking to imitate complex physical technology often do not face the cost disadvantages of imitating complex social phenomena. A great deal of physical technology (machine tools, robots, and so forth) can be purchased in supply markets. Even when a firm develops its own unique physical technology, reverse engineering tends to diffuse this technology among competing firms in a low-cost manner. Indeed, the costs of imitating a successful physical technology are often lower than the costs of developing a new technology.<sup>23</sup>

Although physical technology is usually not costly to imitate, the application of this technology in a firm is likely to call for a wide variety of socially complex organizational resources and capabilities. These organizational resources may be costly to imitate, and if they are valuable and rare, the combination of physical and socially complex resources may be a source of sustained competitive advantage. The importance of socially complex resources and capabilities for firm performance has been studied in detail in the field of strategic human resource management, as described in the Research Made Relevant feature.

**Patents.** At first glance, it might appear that a firm's patents would make it very costly for competitors to imitate its products.<sup>24</sup> Patents do have this effect in some industries. For example, patents in the pharmaceutical and specialty chemical industry effectively foreclose other firms from marketing the same products until a firm's patents expire. As suggested in Chapter 2, patents can raise the cost of imitation in a variety of other industries as well.

However, from another point of view a firm's patents may decrease, rather than increase, the costs of imitation. When a firm files for patent protection, it is forced to reveal a significant amount of information about its product. Governments require this information to ensure that the technology in question is patentable. By obtaining a patent, a firm may provide important information to competitors about how to imitate its technology.

Moreover, most technological developments in an industry are diffused throughout firms in that industry in a relatively brief period of time, even if the technology in question is patented, because patented technology is not immune from low-cost imitation. Patents may restrict direct duplication for a time, but they may actually increase the chances of substitution by functionally equivalent technologies.<sup>25</sup>

### The Question of Organization

A firm's potential for competitive advantage depends on the value, rarity, and imitability of its resources and capabilities. However, to fully realize this potential, a firm must be organized to exploit its resources and capabilities. These observations lead to the **question of organization**: "Is a firm organized to exploit the full competitive potential of its resources and capabilities?"

Numerous components of a firm's organization are relevant to the question of organization, including its formal reporting structure, its formal and informal management control systems, and its compensation policies. A firm's **formal reporting**

## Research Made Relevant

Most empirical tests of the RBV have focused on the extent to which history, causal ambiguity, and social complexity have an impact on the ability of firms to gain and sustain competitive advantage. Among the most important tests has been research that examines the extent to which human resource practices that are likely to create socially complex resources and capabilities are related to firm performance. This area of research is known as *strategic human resource management*.

The first of these tests was conducted as part of a larger study of efficient low-cost manufacturing in the worldwide automobile industry. A group of researchers at the Massachusetts Institute of Technology developed rigorous measures of cost and quality of more than 100 manufacturing plants that assembled mid-size sedans around the world. They discovered that at the time of their study only six of these plants had simultaneous low costs and high-quality manufacturing—a position that obviously would give these plants a competitive advantage in the marketplace.



One of the results of these efforts—and

another distinguishing feature of these six plants—was a high level of employee loyalty and commitment to a plant, as well as the belief that plant managers would treat employees fairly. These socially complex resources and capabilities are the type of resources that the RBV suggests should be sources of sustained competitive advantage.

Later work has followed up on this approach and has examined the impact of HR practices on firm performance outside the manufacturing arena. Using a variety of measures of firm performance and several different measures of HR practices, the results of this research continue to be very consistent with RBV logic. That is, firms that are able to use HR practices to develop socially complex human and organizational resources are able to gain competitive advantages over firms that do not engage in such practices.

**Sources:** J. P. Womack, D. I. Jones, and D. Roa (1990). *The machine that changed the world*. New York: Rawson; M. Huselid (1995). "The impact of human resource management practices on turnover, productivity, and corporate financial performance." *Academy of Management Journal*, 38, pp. 635–672; J. B. Barney and P. Wright (1998). "On becoming a strategic partner." *Human Resource Management*, 37, pp. 31–46.

**Structure** is a description of whom in the organization reports to whom; it is often embodied in a firm's **organizational chart**. **Management control systems** include a range of formal and informal mechanisms to ensure that managers are behaving in ways consistent with a firm's strategies. **Formal management controls** include a firm's budgeting and reporting activities that keep people higher up in a firm's organizational chart informed about the actions taken by people lower down in a firm's organizational chart. **Informal management controls** might include a firm's culture and the willingness of employees to monitor each other's behavior. **Compensation policies** are the ways that firms pay employees. Such policies create incentives for employees to behave in certain ways.

These components of a firm's organization are often called **complementary resources and capabilities** because they have limited ability to generate competitive

advantage in isolation. However, in combination with other resources and capabilities they can enable a firm to realize its full potential for competitive advantage.<sup>26</sup>

For example, it has already been suggested that ESPN may have a sustained competitive advantage in the extreme sports segment of the sports broadcasting industry. However, if ESPN's management had not taken advantage of its opportunities in extreme sports by expanding coverage, ensuring that the best competitors come to ESPN competitions, adding additional competitions, and changing up older competitions, then its potential for competitive advantage would not have been fully realized. Of course, the reason that ESPN has done all these things is because it has an appropriate organizational structure, management controls, and employee compensation policies. By themselves, these attributes of ESPN's organization could not be a source of competitive advantage; however, they were essential for ESPN to realize its full competitive advantage potential.

Having an appropriate organization in place has enabled ESPN to realize the full competitive advantage potential of its other resources and capabilities. Having an inappropriate organization in place prevented Sony from exploiting its valuable, rare, and costly-to-imitate resources and capabilities.

Earlier in this chapter, it was suggested that Sony had unusual experience in designing and building a wide variety of consumer electronics products. In the process of building this giant consumer electronics company, managers at Sony developed and acquired two substantial businesses: Sony Consumer Electronics and Sony Records.

Among the many products developed by the Consumer Electronics business was an early MP3 player (i.e., a portable device that played music and other digital media from a hard drive). The key to MP3 technology was compression—taking analog signals and storing them in a way that they did not take up disproportionate space on the hard drive. Without compression, you could only store a few songs on an MP3 player; with compression, you can store thousands. Sony was a leader in compression technology.

Of course, to be effective, MP3 players must have content to play. Here, the Sony Records Division should have been very helpful to the Consumer Electronics Division: Records had recording contracts with many famous artists, and Consumer Products had the MP3 player (along with compression technology) to play that music.

So, why does Apple—with iPods, iTunes, iPhones, and iPads—dominate the portable music listening market? Apple had no advantages. It was late to the MP3 market (although it did introduce an MP3 player with a particularly elegant interface), it did not own any content, and it had a limited online presence.

One explanation of Apple's success is Sony's failure—despite having the potential to dominate this market, despite its history of dominating similar markets in the past (e.g., the Sony Walkman portable tape player), Sony could not find a way for its two divisions—Consumer Electronics and Music—to cooperate. Put differently, Sony's failure was a failure in organization. The engineers in the Consumer Electronics business could never find a way to work with the artists in the music business.

Of course, Apple had to do a great deal more to take advantage of the opportunity that Sony's organization failure had created for them. Nevertheless, despite its potential, Sony failed to gain or sustain any significant competitive advantages in this lucrative MP3 market.<sup>27</sup>

## Applying the VRIO Framework

The questions of value, rarity, imitability, and organization can be brought together into a single framework to understand the return potential associated with exploiting any of a firm's resources or capabilities. This is done in Table 3.3. The relationship of the VRIO framework to strengths and weaknesses is presented in Table 3.4.

If a resource or capability controlled by a firm is not valuable, it will not enable a firm to choose or implement strategies that exploit environmental opportunities or neutralize environmental threats. Organizing to exploit this resource will increase a firm's costs or decrease its revenues. These types of resources are weaknesses. Firms will either have to fix these weaknesses or avoid using them when choosing and implementing strategies. If firms do exploit these kinds of resources and capabilities, they can expect to put themselves at a competitive disadvantage compared to those that either do not possess these nonvaluable resources or do not use them in conceiving and implementing strategies.

If a resource or capability is valuable but not rare, exploitation of this resource in conceiving and implementing strategies will generate competitive parity. Exploiting these types of resources will generally not create competitive advantages, but failure to exploit them can put a firm at a competitive disadvantage. In this sense, valuable-but-not-rare resources can be thought of as organizational strengths.

If a resource or capability is valuable and rare but not costly to imitate, exploiting this resource will generate a temporary competitive advantage for a firm. A firm that exploits this kind of resource is, in an important sense, gaining a first-mover advantage because it is the first firm that is able to exploit a particular resource. However, once competing firms observe this competitive advantage, they will be able to acquire or develop the resources needed to implement this strategy through direct duplication or substitution at no cost disadvantage, compared to the first-moving firm. Over time, any competitive advantage that the first mover obtained would be competed away as other firms imitate the resources needed to compete. Consequently, this type of resource or capability can be thought of as an organizational strength and as a **distinctive competence**.

If a resource or capability is valuable, rare, and costly to imitate, exploiting it will generate a sustained competitive advantage. In this case, competing firms

**TABLE 3.3** The VRIO Framework

Is a resource or capability:				
Valuable?	Rare?	Costly to imitate?	Exploited by organization?	Competitive implications
No	—	—	No	Competitive disadvantage
Yes	No	—	↑	Competitive parity
Yes	Yes	No	↓	Temporary competitive advantage
Yes	Yes	Yes	Yes	Sustained competitive advantage

**TABLE 3.4** The Relationship Between the VRIO Framework and Organizational Strengths and Weaknesses

Is a resource or capability:				
Valuable?	Rare?	Costly to imitate?	Exploited by organization?	Strength or weakness
No	—	—	No	Weakness
Yes	No	—		Strength
Yes	Yes	No		Strength and distinctive competence
Yes	Yes	Yes		Strength and sustainable distinctive competence

face a significant cost disadvantage in imitating a successful firm's resources and capabilities. As suggested earlier, this competitive advantage may reflect the unique history of the successful firm, causal ambiguity about which resources to imitate, the socially complex nature of these resources and capabilities, or any patent advantages a firm might possess. In any case, attempts to compete away the advantages of firms that exploit these resources will not generate competitive advantage, or even competitive parity, for imitating firms. Even if these firms are able to acquire or develop the resources or capabilities in question, the very high costs of doing so would put them at a competitive disadvantage. These kinds of resources and capabilities are organizational strengths and **sustainable distinctive competencies**.

The question of organization operates as an adjustment factor in the VRIO framework. For example, if a firm has a valuable, rare, and costly-to-imitate resource and capability but fails to organize itself to take full advantage of this resource, some of its potential competitive advantage could be lost (this is the Sony example). Extremely poor organization, in this case, could actually lead a firm that has the potential for competitive advantage to gain only competitive parity or competitive disadvantages.

### Applying the VRIO Framework to Southwest Airlines

To examine how the VRIO framework can be applied in analyzing real strategic situations, consider the competitive position of Southwest Airlines. Southwest Airlines has been the only consistently profitable airline in the United States over the past 30 years. While many U.S. airlines have gone in and out of bankruptcy, Southwest has remained profitable. How has it been able to gain this competitive advantage?

Potential sources of this competitive advantage fall into two big categories: operational choices Southwest has made and Southwest's approach to managing its people. On the operational side, Southwest has chosen to fly only a single type of aircraft (Boeing 737), only flies into smaller airports, has avoided complicated hub-and-spoke route systems, and, instead, flies a point-to-point system. On the people-management side, despite being highly unionized, Southwest has been able to develop a sense of commitment and loyalty among its employees. It is not unusual to see Southwest employees go well beyond their narrowly defined job responsibilities, helping out in whatever way is necessary to get a plane off the ground safely and on time. Which of these—operational choices or Southwest's approach to managing its people—is more likely to be a source of sustained competitive advantage?