investing in adaptive learning systems such as WileyPLUS, Cengage MindTap, and McGraw-Hill Connect. Complicating factors for the publishers is the changing business model of renting textbooks (printed and electronic). U.S. university book rental was about 25 percent of student purchasing volume in 2015.[50]

Use the five forces model (with complements) to think through the various impacts such technology shifts may have on the textbook industry. Include in your response answers to the following questions.

1. How should managers of a textbook publishing company respond to such changes?
2. Will the shifts in technology and business models be likely to raise or lower the textbook industry profits? Explain.

*my*STRATEGY

Is My Job the Next One Being Outsourced?

The outsourcing of IT programming jobs to India is now commonly understood after years of this trend. However, more recently some accounting functions have also begun to flow into India's large technically trained and English-speaking work force. For example, the number of U.S. tax returns completed in India rose dramatically from 2003 to 2011 (25,000 in 2003 to 1.6 million in 2011). Some estimate that over 20 million U.S. tax returns will be prepared in India within the next few years. Outsourcing accounting functions may affect the job and career prospects for accounting-oriented business school graduates. Tax accountants in Bangalore, India, are much cheaper than those in Boston or Baltimore. Moreover, tax accountants in India often work longer hours and can therefore process many more tax returns than U.S.-based CPAs and tax accountants during the crunch period of the U.S. tax filing system.[51] Other services once thought to be immune to offshoring are also experiencing vulnerability. One example is the rise in medical tourism for major medical treatments to handle everything from joint replacements, weight loss, dental problems, and infertility. It is estimated that over 14 million patients traveled from one country to another seeking medical treatment in 2016 alone.[52]

1. Which aspects of accounting do you think are more likely to resist the outsourcing trends just discussed? Think about what aspects of accounting are the high-value activities versus the routine standardized ones. (If it's been a while since you took your accounting courses, reach out for information to someone in your strategy class who is an accounting major.)
2. What industries do you think may offer the best U.S. (or domestic) job opportunities in the future? Which industries do you think may offer the greatest job opportunities in the global market in the future? Use the PESTEL framework and the five forces model to think through a logical set of reasons that some fields will have higher job growth trends than others.
3. Do these types of macroenvironmental and industry trends affect your thinking about selecting a career field after college? Why or why not? Explain.

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CHAPTER 4

Internal Analysis: Resources, Capabilities, and Core Competencies

Chapter Outline

Learning Objectives

LO 4-1 Differentiate among a firm's core competencies, resources, capabilities, and activities.

LO 4-2 Compare and contrast tangible and intangible resources.

LO 4-3 Evaluate the two critical assumptions behind the resource-based view.

LO 4-4 Apply the VRIO framework to assess the competitive implications of a firm's resources.

LO 4-5 Evaluate different conditions that allow a firm to sustain a competitive advantage.

LO 4-6 Outline how dynamic capabilities can enable a firm to sustain a competitive advantage.

LO 4-7 Apply a value chain analysis to understand which of the firm's activities in the process of transforming inputs into outputs generate differentiation and which drive costs.

LO 4-8 Identify competitive advantage as residing in a network of distinct activities.

LO 4-9 Conduct a SWOT analysis to generate insights from external and internal analysis and derive strategic implications.

CHAPTER CASE 4

Dr. Dre's Core Competency: Coolness Factor

IN 2014, DR. DRE—whose real name is Andre Young—was celebrated as the first hip-hop billionaire after Apple acquired Beats Electronics for $3 billion. Dr. Dre has a long track record as a successful music producer, rapper, and entrepreneur. Known for his strong work ethic, he expects nothing less than perfection from the people he works with—similar to some of the personality attributes ascribed to the late Steve Jobs, co-founder and longtime CEO of Apple.

Dr. Dre, left, and Jimmy Iovine are co-founders of Beats. Following Apple's acquisition of Beats, Dre and Iovine continue to work together to keep Beats relevant and tied to current artists.
©Kevin Mazur/WireImage/Getty Images

Although Dr. Dre created and subsequently sold several successful music record labels, as an entrepreneur he is best known as co-founder of Beats Electronics with Jimmy Iovine, also an entrepreneur and record and film producer. Both are considered to be some of the best-connected businesspeople in the music industry, with personal networks spanning hundreds of both famous and up-and-coming artists. Founded in 2008, Beats Electronics is known globally for its premium consumer headphones, Beats by Dr. Dre, which he claims allows the listeners to "hear all the music." Since early 2014, the company also offers the streaming music subscription service Beats Music. Beats' vision is to "bring the energy, emotion, and excitement of playback in the recording studio to the listening experience and introduce an entirely new generation to the possibilities of premium sound entertainment."[1] Many acoustics experts maintain, however, that playback of digitally compressed MP3 audio files is inferior in comparison to high fidelity. Moreover, the sound quality of Beats headphones is considered poor in comparison to other premium-brand headphones such as those by Bose, JBL, Sennheiser, and others.

Why then would Apple pay $3 billion to acquire Beats Electronics? This was by far the largest acquisition in Apple's history. Two main reasons: First, Apple is hoping that some of Beats' coolness will spill over to its brand, which has become somewhat stale. Apple's iPhones, for example, have become a somewhat standardized commodity given the successful imitation by Samsung and others, although Apple has high expectations for its 10th anniversary iPhone, released in the fall of 2017. Second, although Apple is the world's largest music vendor with 800 million accounts on iTunes Store, the industry is being disrupted. Content delivery, especially in music but also video (think Netflix), is moving rapidly from ownership via downloads to streaming on demand. As a consequence, music downloads have been declining in the past few years.

BEATS' COOLNESS FACTOR

Beats by Dr. Dre achieved an unprecedented coolness factor with celebrity endorsements not only from music icons but also athletes, actors, and other stars. Before Beats, no musician endorsed audio headphones in the same way as a basketball player such as Michael Jordan endorsed his line of Nike shoes, Air Jordan. Dr. Dre was the first legendary music producer to endorse premium headphones. In addition, he created custom Beats for stars such as Justin Bieber, Lady Gaga, and Nicki Minaj. Other music celebrities including Skrillex, Lil Wayne, and will.i.am endorsed Beats by wearing them in their music videos and at live events and mentioning them on social media. But Beats did not stop at musicians. Famous athletes—basketball superstars LeBron James and Kobe Bryant, tennis player Serena Williams, and soccer stars Cristiano Ronaldo and Neymar Jr.—wear Beats by Dr. Dre in public and endorse the brand in advertisements.

DISRUPTION IN CONTENT DELIVERY

Content delivery is rapidly moving from ownership through downloads to renting via online streaming. This disruption in the business model is most visible in movies, as the success of Netflix demonstrates, but is also gaining steam in music. Apple is a laggard in music streaming when compared to leaders such as Pandora with 250 million users and Spotify with 100 million users (of whom 50 million are paying customers). Apple's initial attempt at online music streaming service, iTunes Radio created in 2013, has been falling flat. After disrupting the music download space with iTunes in 2003, Apple is now being disrupted by others that lead in music streaming. Apple is hoping that by acquiring Beats Music it can become a leader in the music streaming space. Renamed Apple Music, the service now has 20 million paid subscribers. Yet it faces competition in the "coolness space"? with the music streaming service Tidal, founded by rap mogul Jay Z. Tidal has exclusive release contracts with superstar artists such as Kanye West, Rihanna, and Beyoncé (who is married to Jay Z). Tidal, however, only has some 2 million paid subscribers. The network provider Sprint, nonetheless, acquired one-third of Tidal in 2017.[2]

You will learn more about Beats Electronics by reading this chapter; related questions appear in "ChapterCase 4 / Consider This. . . ."

ONE OF THE KEY messages of this chapter is that a firm's ability to gain and sustain competitive advantage is partly driven by *core competencies*—unique strengths that are embedded deep within a firm. Core competencies allow a firm to differentiate its products and services from those of its rivals, creating higher value for the customer or offering products and services of comparable value at lower cost. So what are core competencies of Beats by Dr. Dre? Beats succeeds not because it provides the best possible acoustic experience, but because it functions as a fashion statement that communicates coolness.[3] The iconic headphones are worn by celebrities from music, movies, and sports. Even fashion designer Marc Jacobs had models wear Beats headphones during runway shows. The extent to which Beats succeeds at product placements with celebrities across the world is unprecedented. The genius behind Beats is creating a perception that if you want to be as cool as one of your heroes, you need to shell out hundreds of dollars to wear plastic headphones in public.

Beats' unique strengths in establishing a brand that communicates coolness is built upon Dr. Dre's intuition and feel for music and cultural trends; Dr. Dre is one of music's savviest marketing minds. Although the sound quality of Beats headphones is good enough, they mainly sell as a fashion accessory for their coolness factor and brand image. Dr. Dre relies on gut instinct in making decisions, while shunning market research. This approach is quite similar to Apple's late co-founder Steve Jobs who made no secret of his disdain for market research because he believed that consumers don't really know what they want until someone else shows it to them.

Beats' core competency in marketing allows the company to differentiate its products from rival offerings because it is able to create higher perceived value for its customers. In turn, Beats' core competency affords the firm a competitive advantage. It is hugely successful: Beats holds some 65 percent market share in the premium headphone market, priced at $100 and up. Beats' competitive advantage was rewarded with a $3 billion acquisition by Apple.

In this chapter, we study analytical tools to explain why differences in firm performance exist even within the *same* industry. For example, why does Beats Electronics outperform Audio-Technica, Bose, JBL, Skullcandy, Sennheiser, and Sony in the high-end, premium headphone market? Since these companies compete in the same industry and face similar external opportunities and threats, the source for some of the observable performance difference must be found *inside the firm.* When discussing industry, firm, and other effects in

explaining superior performance, we noted that up to 55 percent of the overall performance differences is explained by firm-specific effects (see Exhibit 3.2). Looking inside the firm to analyze its resources, capabilities, and core competencies allows us to understand the firm's strengths and weaknesses. Linking these insights from a firm's internal analysis to the ones derived in Chapter 3 on external analysis allows managers to determine their strategic options. Ideally, firms want to leverage their internal strengths to exploit external opportunities, and to mitigate internal weaknesses and external threats.

Exhibit 4.1 depicts how and why we move from the firm's external environment to its internal environment. To formulate and implement a strategy that enhances the firm's chances of gaining and sustaining competitive advantage, the firm must have certain types of resources and capabilities that combine to form core competencies. The best firms conscientiously identify their core competencies, resources, and capabilities to survive and succeed. Firms then determine how to manage and develop internal strengths to respond to the challenges and opportunities in their external environment. In particular, firms conduct the evaluation and development of internal strengths in the context of external PESTEL forces and competition within its industry and strategic group.

The firm's response is dynamic. Rather than creating a onetime and thus a static fit, the firm's internal strengths need to change with its external environment in a *dynamic* fashion. At each point the goal should be to develop resources, capabilities, and competencies that create a *strategic fit* with the firm's environment. The forward motion of those environmental forces must also be considered. The chapter will provide a deeper understanding of the *sources* of competitive advantage that reside within a firm.

To gain a better understanding of why and how firm differences explain competitive advantage, we begin this chapter by taking a closer look at *core competencies.* Next, we introduce the *resource-based view* of the firm to provide an analytical model that allows us to assess resources, capabilities, and competencies and their potential for creating a sustainable competitive advantage. We discuss the *dynamic capabilities perspective,* a model that emphasizes a firm's ability to modify and leverage its resource base to gain

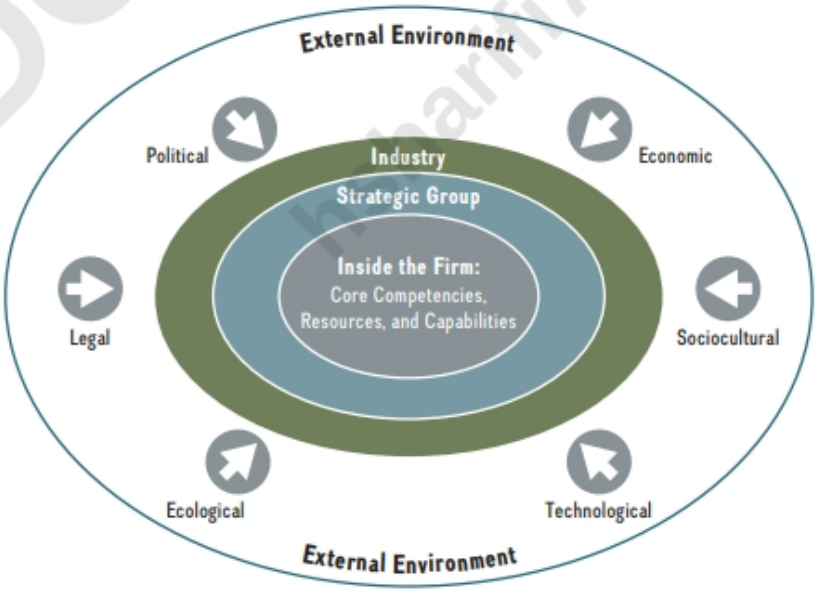


EXHIBIT 4.1
Inside the Firm: Competitive Advantage based on Core Competencies, Resources, and Capabilities

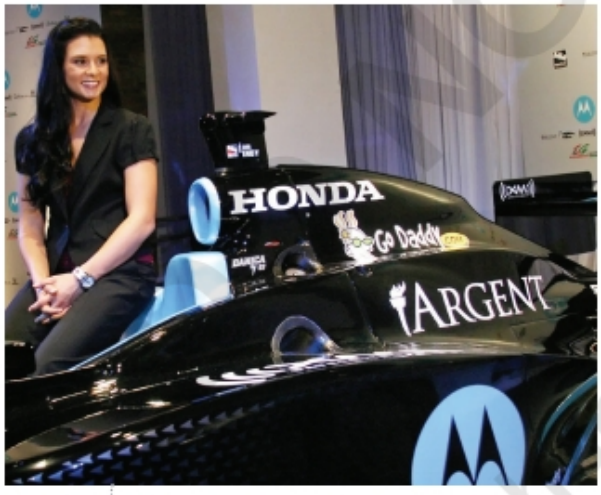
and sustain a competitive advantage in a constantly changing environment. We then turn our attention to the *value chain analysis* to gain a deeper understanding of the internal activities a firm engages in when transforming inputs into outputs. Next, we take a closer look at *strategic activity systems*. Here, a firm's competitive advantages resides in a network of interconnected and reinforcing activities. We conclude with *Implications for Strategic Leaders,* with a particular focus on how to use the *SWOT analysis* to obtain strategic insights from combining external with internal analysis.

4.1 Core Competencies

LO 4-1
Differentiate among a firm's core competencies, resources, capabilities, and activities.

Let's begin by taking a closer look at **core competencies.** These are unique strengths, embedded deep within a firm. Core competencies allow a firm to differentiate its products and services from those of its rivals, creating higher value for the customer or offering products and services of comparable value at lower cost. The important point here is that competitive advantage can be driven by core competencies.[4]

Take Honda as an example of a company with a clearly defined core competency. Its life began with a small two-cycle motorbike engine. Through continuous learning over several decades, and often from lessons learned from failure, Honda built the core competency to design and manufacture small but powerful and highly reliable engines for which it now is famous. This core competency results from superior engineering know-how and skills carefully nurtured and honed over several decades. Honda's business model is to find a place to put its engines. Today, Honda engines can be found everywhere: in cars, SUVs, vans, trucks, motorcycles, ATVs, boats, generators, snowblowers, lawn mowers and other yard equipment, and even small airplanes. Due to their superior performance, Honda engines have been the most popular in the Indy Racing League (IRL) since 2006. Not coincidentally, this was also the first year in its long history that the Indy 500 was run without a single engine problem.



Honda promotes its expertise with engines by sponsoring race car driver Danica Patrick.
©AP Images/Julio Cortez

One way to look at Honda is to view it as a company with a distinct competency in engines and a business model of finding places to put its engines. That is, underneath the products and services that make up the *visible* side of competition lies a diverse set of *invisible* competencies that make this happen. These invisible core competencies reside deep within the firm. Companies, therefore, compete as much in the product and service markets as they do in developing and leveraging core competencies. Although invisible by themselves, core competencies find their expression in superior products and services. Exhibit 4.2 identifies the core competencies of a number of companies, with application examples.

Since core competencies are critical to gaining and sustaining competitive advantage, it is important to understand how they are created. Companies develop core competencies through the interplay of resources and capabilities. Exhibit 4.3 shows this relationship. **Resources** are any assets such as cash, buildings, machinery, or intellectual property that a firm can draw on when crafting and executing a strategy. Resources can be either tangible or intangible. **Capabilities** are the organizational and managerial skills necessary to

core competencies Unique strengths, embedded deep within a firm, that are critical to gaining and sustaining competitive advantage.

resources Any assets that a firm can draw on when formulating and implementing a strategy.

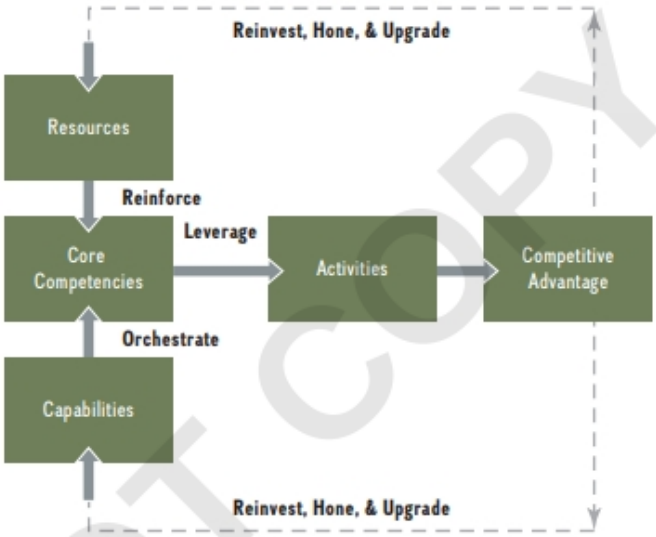
capabilities Organizational and managerial skills necessary to orchestrate a diverse set of resources and deploy them strategically.

EXHIBIT 4.2 / Company Examples of Core Competencies and Applications

Company	Core Competencies	Application Examples
Amazon.com	• Superior IT capabilities. • Superior customer service.	• Online retailing: Largest selection of items online. • Cloud computing: Largest provider through Amazon Web Services (AWS).
Apple	• Superior industrial design in integration of hardware and software. • Superior marketing and retailing experience. • Establishing an ecosystem of products and services that reinforce one another in a virtuous fashion.	• Creation of innovative and category-defining mobile devices and software services that take the user's experience to a new level (e.g., iMac, iPod, iTunes, iPhone, iPad, Apple Pay, and Apple Watch).
Beats Electronics	• Superior marketing: creating a perception of coolness. • Establishing an ecosystem, combining hardware (headphones) with software (streaming service).	• Beats by Dr. Dre and Beats Music.
Coca-Cola	• Superior marketing and distribution.	• Leveraging one of the world's most recognized brands (based on its original "secret formula") into a diverse lineup of soft drinks. • Global availability of products.
ExxonMobil	• Superior at discovering and exploring fossil-fuel–based energy sources globally.	• Focus on oil and gas (fossil fuels only, not renewables).
Facebook	• Superior IT capabilities to provide reliable social network services globally on a large scale. • Superior algorithms to offer targeted online ads.	• Connecting 2 billion social media users worldwide. • News feed, timeline, graph search, and stories.
General Electric	• Superior expertise in industrial engineering, designing and implementing efficient management processes, and developing and training leaders.	• Providing products and services to solve tough engineering problems in energy, health care, and aerospace, among other sectors.
Google (a subsidiary of Alphabet)	• Superior in creating proprietary algorithms based on large amounts of data collected online.	• Software products and services for the internet and mobile computing, including some mobile devices (Pixel phone, Chromebook). • Online search, Android mobile operating system, Chrome OS, Chrome web browser, Google Play, AdWords, AdSense, Google docs, Gmail, etc.
Honda	• Superior engineering of small but powerful and highly reliable internal combustion engines.	• Motorcycles, cars, ATVs, sporting boats, snowmobiles, lawn mowers, small aircraft, etc.
IKEA	• Superior in designing modern functional home furnishings at low cost. • Superior retail experience.	• Fully furnished room setups, practical tools for all rooms, do-it-yourself.
McKinsey	• Superior in developing practice-relevant knowledge, insights, and frameworks in strategy.	• Management consulting; in particular, strategy consulting provided to company and government leaders.
Netflix	• Superior in creating proprietary algorithms-based individual customer preferences.	• DVD-by-mail rentals, streaming media (including proprietary) content, connection to game consoles.
Tesla	• Superior engineering expertise in designing high-performance battery-powered motors and power trains. • Superior expertise in decentralized power storage and management based on renewable (solar) energy.	• Model S, Model X, and Model 3. • Powerwall, solar roof tiles, and complete rooftop solar systems.
Uber	• Superior mobile-app–based transportation and logistics expertise focused on cities, but on global scale.	• Uber, UberX, UberBlack, UberLUX, UberSUV, etc.

EXHIBIT 4.3

Linking Core Competencies, Resources, Capabilities, and Activities to Competitive Advantage



orchestrate a diverse set of resources and to deploy them strategically. Capabilities are by nature intangible. They find their expression in a company's structure, routines, and culture.

As shown in Exhibit 4.3, such competencies are demonstrated in the company's activities, which can lead to competitive advantage, resulting in superior firm performance. **Activities** are distinct and fine-grained business processes such as order taking, the physical delivery of products, or invoicing customers. Each distinct activity enables firms to add incremental value by transforming inputs into goods and services. In the interplay of resources and capabilities, resources reinforce core competencies, while capabilities allow managers to orchestrate their core competencies. Strategic choices find their expression in a set of specific firm activities, which leverage core competencies for competitive advantage. The arrows leading back from competitive advantage to resources and capabilities indicate that superior performance in the marketplace generates profits that can be reinvested into the firm (retained earnings) to further hone and upgrade a firm's resources and capabilities in its pursuit of achieving and maintaining a strategic fit within a dynamic environment.

activities Distinct and fine-grained business processes that enable firms to add incremental value by transforming inputs into goods and services.

We should make two more observations about Exhibit 4.3 before moving on. First, core competencies that are not continuously nourished will eventually lose their ability to yield a competitive advantage. And second, in analyzing a company's success in the market, it can be too easy to focus on the more *visible* elements or facets of core competencies such as superior products or services. While these are the outward manifestation of core competencies, what is even more important is to understand the *invisible* part of core competencies. As to the first point, let's consider the consumer electronics industry. For some years, Best Buy outperformed Circuit City based on its strengths in customer-centricity (segmenting customers based on demographic, attitudinal, and value tiers, and configuring stores to serve the needs of the customer segments in that region), employee development, and exclusive branding. Although Best Buy outperformed Circuit City (which filed for bankruptcy in 2009), more recently Best Buy did not hone and upgrade its core competencies sufficiently to compete effectively against Amazon.com, the world's largest online retailer. Amazon does not have the overhead expenses associated with maintaining buildings or human sales forces; therefore, it has a lower cost structure and thus can undercut in-store retailers on price. When a firm does not invest in continual upgrading or improving

core competencies, its competitors are more likely to develop equivalent or superior skills, as did Amazon. This insight will allow us to explain differences between firms in the same industry, as well as competitive dynamics, over time. It also will help us identify the strategy with which firms gain and sustain a competitive advantage and weather an adverse external environment.

As to the second point, we will soon introduce tools to help bring more opaque aspects of a firm's core competencies into the daylight to be seen with clarity. We start by looking at both tangible and intangible resources.

4.2 The Resource-Based View

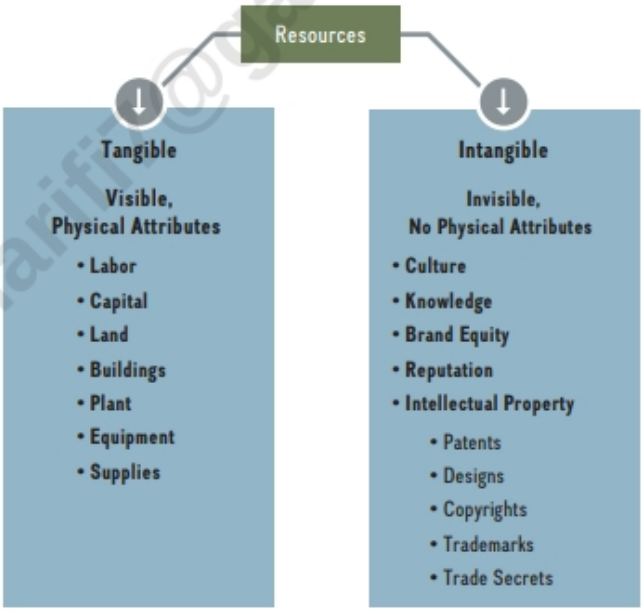
LO 4-2 Compare and contrast tangible and intangible resources.

To gain a deeper understanding of how the interplay between resources and capabilities creates core competencies that drive firm activities leading to competitive advantage, we turn to the **resource-based view** of the firm. This model systematically aids in identifying core competencies.[5] As the name suggests, this model sees resources as key to superior firm performance. As Exhibit 4.4 illustrates, resources fall broadly into two categories: tangible and intangible. **Tangible resources** have physical attributes and are visible. Examples of tangible resources are labor, capital, land, buildings, plant, equipment, and supplies. **Intangible resources** have no physical attributes and thus are invisible. Examples of intangible resources are a firm's culture, its knowledge, brand equity, reputation, and intellectual property.

Consider Google (since 2015 a subsidiary of Alphabet, which is a holding company overseeing a diverse set of activities). Alphabet's tangible resources, valued at $34 billion, include its headquarters (The Googleplex)[6] in Mountain View, California, and numerous server farms (clusters of computer servers) across the globe.[7] The Google brand, an intangible resource, is valued at roughly $230 billion (number one worldwide)—almost seven times higher than the value of Alphabet's tangible assets.[8]

Google's headquarters provides examples of both tangible and intangible resources. The Googleplex is a piece of land with a futuristic building, and thus a tangible resource. The *location* of the company in the heart of Silicon Valley is an *intangible resource* that provides access to a valuable network of contacts and gives the company several benefits. It allows Google to tap into a large and computer-savvy work force and access graduates and knowledge spillovers from a large number of universities, which adds to Google's technical and managerial capabilities.[9] Another benefit

EXHIBIT 4.4 / Tangible and Intangible Resources



resource-based view A model that sees certain types of resources as key to superior firm performance.

tangible resources Resources that have physical attributes and thus are visible.

intangible resources Resources that do not have physical attributes and thus are invisible.

stems from Silicon Valley's designation as having the largest concentration of venture capital in the United States. This proximity benefits Google because venture capitalists tend to prefer local investments to ensure closer monitoring.[10] Google received initial funding from the well-known venture capital firms Kleiner Perkins Caufield & Byers and Sequoia Capital, both located in Silicon Valley.

Competitive advantage is more likely to spring from intangible rather than tangible resources. Tangible assets, such as buildings or computer servers, can be bought on the open market by anyone who has the necessary cash. However, a brand name must be built, often over long periods of time. Google (founded in 1998) and Amazon.com (founded in 1994, and with a brand value of $100 billion) accomplished their enormous brand valuations fairly quickly due to a ubiquitous internet presence, while the other companies in the global top-10 most valuable brands—Apple, Microsoft, AT&T, Facebook, Visa, Verizon, McDonald's, and IBM—took much longer to build value and have it recognized in the marketplace.[11]

Note that the resource-based view of the firm uses the term *resource* much more broadly than previously defined. In the resource-based view of the firm, a resource includes any assets as well as any capabilities and competencies that a firm can draw upon when formulating and implementing strategy. In addition, the usefulness of the resource-based view to explain and predict competitive advantage rests upon two critical assumptions about the nature of resources, to which we turn next.

TWO CRITICAL ASSUMPTIONS

LO 4-3
Evaluate the two critical assumptions behind the resource-based view.

Two assumptions are critical in the resource-based model: (1) *resource heterogeneity* and (2) *resource immobility*.[12] What does this mean? In the resource-based view, a firm is assumed to be a unique bundle of resources, capabilities, and competencies. The first critical assumption—**resource heterogeneity**—comes from the insight that bundles of resources, capabilities, and competencies differ across firms. This insight ensures that analysts look more critically at the resource bundles of firms competing in the *same* industry (or even the same strategic group), because each bundle is unique to some extent. For example, Southwest Airlines (SWA) and Alaska Airlines both compete in the same strategic group (low-cost, point-to-point airlines, see Exhibit 3.7). But they draw on different resource bundles. SWA's employee productivity tends to be higher than that of Alaska Airlines, because the two companies differ along human and organizational resources. At SWA, job descriptions are informal and employees pitch in to "get the job done." Pilots may help load luggage to ensure an on-time departure; flight attendants clean airplanes to help turn them around at the gate within 15 minutes from arrival to departure. This allows SWA to keep its planes flying for longer and lowers its cost structure, savings that SWA passes on to passengers in lower ticket prices.

resource heterogeneity Assumption in the resource-based view that a firm is a bundle of resources and capabilities that differ across firms.

The second critical assumption—**resource immobility**—describes the insight that resources tend to be "sticky" and don't move easily from firm to firm. Because of that stickiness, the resource differences that exist between firms are difficult to replicate and, therefore, can last for a long time. For example, SWA has enjoyed a sustained competitive advantage, allowing it to outperform its competitors over several decades. That resource difference is not due to a lack of imitation attempts, though. Continental and Delta both attempted to copy SWA, with Continental Lite and Song airline offerings, respectively. Neither airline, however, was able to successfully imitate the resource bundles and firm capabilities that make SWA unique. Combined, these insights tell us that resource bundles differ across firms, and such differences can persist for long periods. These two assumptions about resources are critical to explaining superior firm performance in the resource-based model.

resource immobility Assumption in the resource-based view that a firm has resources that tend to be "sticky" and that do not move easily from firm to firm.

Note, by the way, that the critical assumptions of the resource-based model are fundamentally different from the way in which a firm is viewed in the perfectly competitive industry structure introduced in Chapter 3. In perfect competition, all firms have access to the *same* resources and capabilities, ensuring that any advantage that one firm has will be short-lived. That is, when resources are freely available and mobile, competitors can move quickly to acquire resources that are utilized by the current market leader. Although some commodity markets approach this situation, most other markets include firms whose resource endowments differ. The resource-based view, therefore, delivers useful insights to managers about how to formulate a strategy that will enhance the chances of gaining a competitive advantage.

THE VRIO FRAMEWORK

Our tool for evaluating a firm's resource endowments is a framework that answers the question of what resource attributes underpin competitive advantage. This framework is implied in the resource-based model, identifying certain *types of resources* as key to superior firm performance.[13] For a resource to be the basis of a competitive advantage, it must be

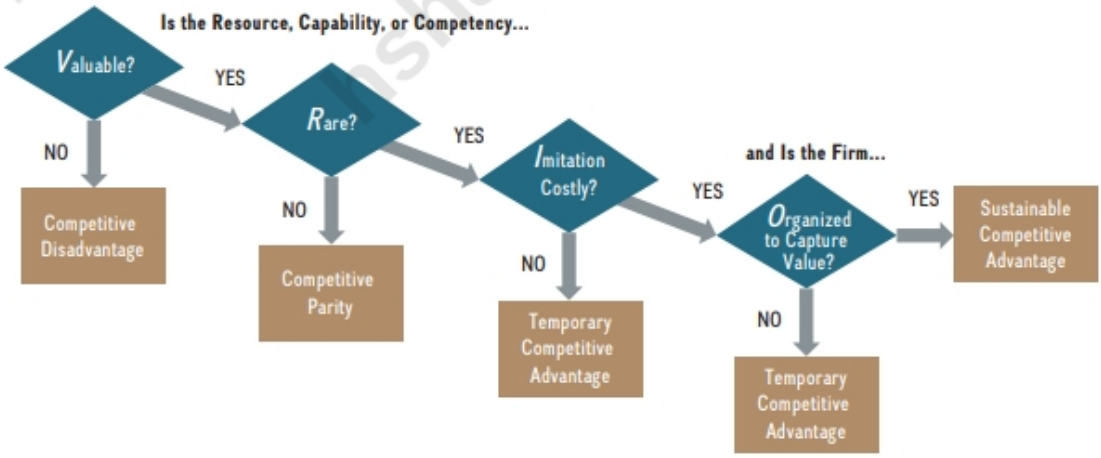
Valuable,
Rare, and costly to
Imitate. And finally, the firm itself must be
Organized to capture the value of the resource.

Following the lead of Jay Barney, one of the pioneers of the resource-based view of the firm, we call this model the **VRIO framework**.[14] According to this model, a firm can gain and sustain a competitive advantage only when it has resources that satisfy all of the VRIO criteria. Keep in mind that resources in the VRIO framework are broadly defined to include any assets *as well as* any capabilities and competencies that a firm can draw upon when formulating and implementing strategy. So to some degree, this presentation of the VRIO model summarizes all of our discussion in the chapter so far.

VRIO framework A theoretical framework that explains and predicts firm-level competitive advantage.

Exhibit 4.5 captures the VRIO framework in action. You can use this decision tree to decide if the resource, capability, or competency under consideration fulfills the VRIO

EXHIBIT 4.5 / Applying the VRIO Framework to Reveal Competitive Advantage



requirements. As you study the following discussion of each of the VRIO attributes, you will see that the attributes accumulate. If the answer is "yes" four times to the attributes listed in the decision tree, only then is the resource in question a core competency that underpins a firm's sustainable competitive advantage.

LO 4-4

Apply the VRIO framework to assess the competitive implications of a firm's resources.

VALUABLE. A **valuable resource** is one that enables the firm to exploit an external opportunity or offset an external threat. This has a positive effect on a firm's competitive advantage. In particular, a valuable resource enables a firm to increase its economic value creation $(V - C)$. Revenues rise if a firm is able to increase the perceived value of its product or service in the eyes of consumers by offering superior design and adding attractive features (assuming costs are not increasing). Production costs, for example, fall if the firm is able to put an efficient manufacturing process and tight supply chain management in place (assuming perceived value is not decreasing). Beats Electronics' ability to design and market premium headphones that bestow a certain air of coolness upon wearers is a valuable resource. The profit margins for Beats designer headphones are astronomical: The production cost for its headphones is estimated to be no more than $15, while they retail for $150 to $450, with some special editions over $1,000. Thus, Beats' competency in designing and marketing premium headphones is a valuable resource in the VRIO framework.

valuable resource One of the four key criteria in the VRIO framework. A resource is valuable if it helps a firm exploit an external opportunity or offset an external threat.

RARE. A resource is **rare** if only one or a few firms possess it. If the resource is common, it will result in perfect competition where no firm is able to maintain a competitive advantage (see discussion in Chapter 3). A resource that is valuable but not rare can lead to competitive parity at best. A firm is on the path to competitive *advantage* only if it possesses a valuable resource that is also rare. Beats Electronics' ability and reach in product placement and celebrity endorsements that build its coolness factor are certainly rare. No other brand in the world, not even Apple or Nike, has such a large number of celebrities from music, movies, and sports using its product in public. Thus, this resource is not only valuable but also rare.

rare resource One of the four key criteria in the VRIO framework. A resource is rare if the number of firms that possess it is less than the number of firms it would require to reach a state of perfect competition.

COSTLY TO IMITATE. A resource is **costly to imitate** if firms that do not possess the resource are unable to develop or buy the resource at a reasonable price. If the resource in question is valuable, rare, and costly to imitate, then it is an internal strength and a core competency. If the firm's competitors fail to duplicate the strategy based on the valuable, rare, and costly-to-imitate resource, then the firm can achieve a temporary competitive advantage.

costly-to-imitate resource One of the four key criteria in the VRIO framework. A resource is costly to imitate if firms that do not possess the resource are unable to develop or buy the resource at a comparable cost.

Beats' core competency in establishing a brand that communicates coolness is built upon the intuition and feel for music and cultural trends of Dr. Dre, one of music's savviest marketing minds. Although the sound quality of Beats headphones is good enough, they mainly sell as a fashion accessory for their coolness factor and brand image. Because its creator Dr. Dre relies on gut instinct in making decisions rather than market research, this resource is costly to imitate. Even if a firm wanted to copy Beats' core competency—how would it go about it? The music and trend-making talent as well as the social capital of Dr. Dre and Jimmy Iovine, two of the best-connected people in the music industry, might be impossible to replicate. Even Apple with its deep talent pool decided not to build its own line of premium headphones but rather opted to acquire Beats Electronics' line for $3 billion, and to put employment contracts in place that make Dr. Dre and Jimmy Iovine senior executives at Apple Inc. The combination of the three resource attributes $(V + R + I)$ has allowed Beats Electronics to enjoy a competitive advantage (see Exhibit 4.5).

A firm that enjoys a competitive advantage, however, attracts significant attention from its competitors. They will attempt to negate a firm's resource advantage by directly imitating the resource in question *(direct imitation)* or through working around it to provide a comparable product or service *(substitution)*.

Direct Imitation. We usually see direct imitation, as a way to copy or imitate a valuable and rare resource, when firms have difficulty protecting their advantage. (We discuss barriers to imitation shortly.) Direct imitation is swift if the firm is successful and intellectual property (IP) protection such as patents or trademarks, for example, can be easily circumvented.

Tiffany & Co. has developed a core competency–elegant jewelry design and craftsmanship delivered through a superior customer experience–that is valuable, rare, and costly for competitors to imitate. The company vigorously protects its trademarks, including its Tiffany Blue Box, but it never trademarked the so-called Tiffany setting for diamond rings, used now by many jewelers. The term has been co-opted for advertising by other retailers (including Costco), which now maintain it is a generic term commonly used in the jewelry industry.

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Crocs, the maker of the iconic plastic clog, fell victim to direct imitation. Launched in 2002 as a spa shoe at the Fort Lauderdale, Florida, boat show, Crocs experienced explosive growth, selling millions of pairs each year and reaching over $650 million in revenue in 2008. Crocs are worn by people in every age group and walk of life, including celebrities Sergey Brin, Matt Damon, Heidi Klum, Adam Sandler, and even Kate Middleton, the Duchess of Cambridge. To protect its unique shoe design, the firm owns several patents. Given Crocs' explosive growth, however, numerous cheap imitators have sprung up to copy the colorful and comfortable plastic clog. Despite the patents and celebrity endorsements, other firms were able to copy the shoe, taking a big bite into Crocs' profits. Indeed, Crocs' share price plunged from a high of almost $75 to less than $1 in just 13 months.[15]

This example illustrates that competitive advantage cannot be sustained if the underlying capability can easily be replicated and can thus be *directly imitated.* Competitors simply created molds to imitate the shape, look, and feel of the original Crocs shoe. Any competitive advantage in a fashion-driven industry, moreover, is notoriously short-lived if the company fails to continuously innovate or build such brand recognition that imitators won't gain a foothold in the market. Crocs was more or less a "one-trick pony."

Beats Electronics, on the other hand, created an ecosystem of hardware (Beats by Dr. Dre) and software (Beats Music) that positively reinforce one another. Beats by Dr. Dre are the installed base that drives demand for Beats Music (now called Apple Music). As Apple Music's music streaming and celebrity-curated playlists become more popular, demand for Beats headphones further increases. With increasing demand, Apple Music services also become more valuable as its proprietary algorithms have more data to work with. Continuous innovation by churning out new headphone designs combined with the unique coolness factor of Dr. Dre make direct imitation attempts difficult.

Substitution. The second avenue of imitation for a firm's valuable and rare resource is through *substitution.* This is often accomplished through *strategic equivalence.* Take the example of Jeff Bezos launching and developing Amazon.com.[16] Before Amazon's inception, the retail book industry was dominated by a few large chains and many independent mom-and-pop bookstores. As the internet was emerging in the 1990s, Bezos was looking for options in online retail. He zeroed in on books because of their non-differentiated commodity nature and easiness to ship. In purchasing a printed book online, customers knew exactly what they would be shipped, because the products were identical, whether sold online or in a brick-and-mortar store. The only difference was the mode of transacting and delivery. Taking out the uncertainty of online retailing to some extent made potential customers more likely to try this new way of shopping.

The emergence of the internet allowed Bezos to come up with a new distribution system that negated the need for retail stores and thus high real-estate costs. Bezos' new business model of ecommerce not only substituted for the traditional fragmented supply chain in book retailing, but also allowed Amazon to offer lower prices due to its lower operating costs. Amazon uses a strategic equivalent substitute to satisfy a customer need previously met by brick-and-mortar retail stores.

Combining Imitation and Substitution. In some instances, firms are able to combine direct imitation and substitution when attempting to mitigate the competitive advantage of a rival. With its Galaxy line of smartphones, Samsung has been able to imitate successfully the look and feel of Apple's iPhones. Samsung's Galaxy smartphones use Google's Android operating system and apps from Google Play as an alternative to Apple's iOS and iTunes Store. Samsung achieved this through a combination of *direct imitation* (look and feel) and *substitution* (using Google's mobile operating system and app store).[17]

More recently Amazon has opened a new chapter in its competitive moves by its acquisition of the brick-and-mortar Whole Foods in 2017. As we will see in ChapterCase 8, Amazon's entry into high-end groceries involves both imitation and substitution.

ORGANIZED TO CAPTURE VALUE. The final criterion of whether a rare, valuable, and costly-to-imitate resource can form the basis of a sustainable competitive advantage depends on the firm's internal structure. To fully exploit the competitive potential of its resources, capabilities, and competencies, a firm must be **organized to capture value**—that is, it must have in place an effective organizational structure and coordinating systems. (We will study organizational design in detail in Chapter 11.)

organized to capture value One of the four key criteria in the VRIO framework. The characteristic of having in place an effective organizational structure, processes, and systems to fully exploit the competitive potential of the firm's resources, capabilities, and competencies.

Before Apple or Microsoft had any significant share of the personal computer market, Xerox's Palo Alto Research Center (PARC) invented and developed an early word-processing application, the graphical user interface (GUI), the Ethernet, the mouse as a pointing device, and even the first personal computer. These technology breakthroughs laid the foundation of the desktop-computing industry.[18] Xerox's invention competency built through a unique combination of resources and capabilities was clearly valuable, rare, and costly to imitate with the potential to create a competitive advantage.

Due to a lack of appropriate organization, however, Xerox failed to appreciate and exploit the many breakthroughs made by PARC in computing software and hardware. Why? Because the innovations did not fit within the Xerox business focus at the time. Under pressure in its core business from Japanese low-cost competitors, Xerox's top management was busy pursuing innovations in the photocopier business. Xerox was not organized to appreciate the competitive potential of the valuable, rare, and inimitable resources generated at PARC, if not in the photocopier field. Such organizational problems were exacerbated by geography: Xerox headquarters is on the East Coast in Norwalk, Connecticut, across the country from PARC on the West Coast in Palo Alto, California.[19] Nor did it help that development engineers at Xerox headquarters had a disdain for the scientists engaging in basic research at PARC. In the meantime, both Apple and Microsoft developed operating systems, graphical user interfaces, and application software.

If a firm is not effectively organized to exploit the competitive potential of a valuable, rare, and costly-to-imitate (VRI) resource, the best-case scenario is a temporary competitive advantage (see Exhibit 4.5). In the case of Xerox, where management was not supportive of the resource, even a temporary competitive advantage would not be realized even though the resource meets the VRI requirements.

In summary, for a firm to gain and sustain a competitive advantage, its resources and capabilities need to interact in such a way as to create unique core competencies (see Exhibit 4.3). Ultimately, though, only a few competencies may turn out to be those *specific* core competencies that fulfill the VRIO requirements.[20] A company cannot do everything equally well and must carve out a unique strategic position for itself, making necessary trade-offs.[21] Strategy Highlight 4.1 demonstrates application of the VRIO framework.

Strategy Highlight 4.1

Applying VRIO: The Rise and Fall of Groupon

After graduating with a degree in music from Northwestern University, Andrew Mason spent a couple of years as a web designer. In 2008, the then 27-year-old founded Groupon, a daily-deal website that connects local retailers and other merchants to consumers by offering goods and services at a discount. Groupon creates marketplaces by bringing the brick-and-mortar world of local commerce onto the internet. The company basically offers a "group-coupon." If more than a predetermined number of Groupon users sign up for the offer, the deal is extended to all Groupon users. For example, a local spa may offer a massage for $40 instead of the regular $80. If more than say 10 people sign up, the deal becomes reality. The users prepay $40 for the coupon, which Groupon splits 50-50 with the local merchant. Inspired by how Amazon.com has become the global leader in ecommerce, Mason's strategic vision for Groupon was *to be the global leader in local commerce*.

Measured by its explosive growth, Groupon became one of the most successful recent internet startups, with over 260 million subscribers and serving more than 500,000 merchants in the United States and some 50 countries. Indeed, Groupon's success attracted a $6 billion buyout offer by Google in early 2011, which Mason declined. In November 2011, Groupon held a successful initial public offering (IPO), valued at more than $16 billion with a share price of over $26. But a year later, Groupon's share price had fallen 90 percent to just $2.63, resulting in a market cap of less than $1.8 billion. In early 2013, Mason posted a letter for Groupon employees on the web, arguing that it would leak anyway, stating, "After four and a half intense and wonderful years as CEO of Groupon, I've decided that I'd like to spend more time with my family. Just kidding—I was fired today."

Although Groupon is still in business, it is just one competitor among many, and not a market leader. What went wrong? The implosion of Groupon's market value can be explained using the VRIO framework. Its competency to drum up more business for local retailers by offering lower prices for its users was certainly *valuable*. Before Groupon, local merchants used online and classified ads, direct mail, yellow pages, and other venues to reach customers. Rather than using one-way communication, Groupon facilitates the meeting of supply and demand in local markets. When Groupon launched, such local market-making competency was also *rare*. Groupon, with its first-mover advantage, seemed able to use technology in a way so valuable and rare it prompted Google's buyout offer. But was it costly to imitate? Not so much.

The multibillion-dollar Google offer spurred potential competitors to reproduce Groupon's business model. They discovered that Groupon was more of a sales company than a tech venture, despite perceptions to the contrary. To target and fine-tune its local deals, Groupon relies heavily on human labor to do the selling. Barriers to entry in this type of business are nonexistent because Groupon's competency is built more on a tangible resource (labor) than on an intangible one (proprietary technology). Given that Groupon's valuable and rare competency was *not hard to imitate*, hundreds of new ventures (so-called Groupon clones) rushed in to take advantage of this opportunity. Existing online giants such as Google, Amazon (via LivingSocial), and Facebook also moved in. The spurned Google almost immediately created its own daily-deal version with Google Offers.

Also, note that the ability to imitate a rare and valuable resource is directly linked to barriers of entry, which is one of the key elements in Porter's five forces model *(threat of new entrants)*. This relationship allows linking internal analysis using the resource-based view to external analysis with the five forces model, which also would have predicted low industry profit potential given low or no barriers to entry.

To make matters worse, these Groupon clones are often able to better serve the needs of local markets and specific population groups. Some daily-deal sites focus only on a specific geographic area. As an example, Conejo Deals meets the needs of customers and retailers in Southern California's Conejo Valley, a cluster of suburban communities. These hyper-local sites tend to have much deeper relationships and expertise with merchants in their specific areas. Since they are mostly matching local customers with local businesses, moreover, they tend to foster more repeat business than the one-off bargain hunters that use Groupon (based in Chicago). In addition, some daily-deal sites often target specific groups. They have greater expertise in matching their users with local retailers (e.g., Daily Pride serving LGBT communities; Black Biz Hookup serving African-American business owners and operators; Jdeal, a Jewish group-buying site in New York City; and so on).

(continued)

"Finding your specific group" or "going hyper local" allows these startups to increase the perceived value added for their users over and above what Groupon can offer. Although Groupon aspires to be the *global leader*, there is really no advantage to global scale in serving local markets. This is because daily-deal sites are best suited to market *experience goods*, such as haircuts at a local barber shop or a meal in a specific Thai restaurant. The quality of these goods and services cannot be judged unless they are consumed. Creation of experience goods and their consumption happens in the *same geographic space*.

Once imitated, Groupon's competency to facilitate local commerce using an internet platform was neither valuable nor rare. As an application of the VRIO model would have predicted, Groupon's competitive advantage as a first mover would only be temporary at best (see Exhibit 4.5).[22]

LO 4-5
Evaluate different conditions that allow a firm to sustain a competitive advantage.

ISOLATING MECHANISMS: HOW TO SUSTAIN A COMPETITIVE ADVANTAGE

isolating mechanisms
Barriers to imitation that prevent rivals from competing away the advantage a firm may enjoy.

Although VRIO resources can lay the foundation of a competitive advantage, no competitive advantage can be sustained indefinitely.[23] Several conditions, however, can offer some protection to a successful firm by making it more difficult for competitors to imitate the resources, capabilities, or competencies that underlie its competitive advantage. *Barriers to imitation* are important examples of **isolating mechanisms** because they prevent rivals from competing away the advantage a firm may enjoy; they include:[24]

- Better expectations of future resource value.
- Path dependence.
- Causal ambiguity.
- Social complexity.
- Intellectual property (IP) protection.

This link ties isolating mechanisms directly to one of the criteria in the resource-based view to assess the basis of competitive advantage: costly (or difficult) to imitate. If one, or any combination, of these isolating mechanisms is present, a firm may strengthen its basis for competitive advantage, increasing its chance to be sustainable over a longer period of time.

BETTER EXPECTATIONS OF FUTURE RESOURCE VALUE. Sometimes firms can acquire resources at a low cost, which can lay the foundation for a competitive advantage later when expectations about the future of the resource turn out to be more accurate than those held by competitors. Better expectations of the future value of a resource allows a firm to gain a competitive advantage. If such better expectations can be systematically repeated over time, it may help in sustaining a competitive advantage.

A real estate developer illustrates the role that the future value of a resource can play. She must decide when and where to buy land for future development. Her firm may gain a competitive advantage if she buys a parcel of land for a low cost in an undeveloped rural area 40 miles north of San Antonio, Texas—in anticipation that it will increase in value with shifting demographics. Let's assume, several years later, that an interstate highway is built near her firm's land. With the highway, suburban growth explodes as many new neighborhoods and shopping malls are built. Her firm is now able to develop this particular piece of property to build high-end office or apartment buildings. The value creation far exceeds the cost, and her firm gains a competitive advantage. The resource has suddenly become valuable, rare, and costly to imitate, gaining the developer's firm a competitive advantage.

Other developers could have bought the land, but once the highway was announced, the cost of the developer's land and that of adjacent land would have risen drastically, reflecting the new reality and thus negating any potential for competitive advantage. The developer had better expectations than her competitors of the future value of the resource, in this case the land she purchased. If this developer can repeat such "better expectations" over time in a more or less systematic fashion, her firm is likely to have a sustainable competitive advantage. If she cannot, she was simply lucky. Although luck can play a role in gaining an initial competitive advantage, it is not a basis for a sustainable competitive advantage.

PATH DEPENDENCE. **Path dependence** describes a process in which the options one faces in a current situation are limited by decisions made in the past.[25] Often, early events—sometimes even random ones—have a significant effect on final outcomes.

path dependence A situation in which the options one faces in the current situation are limited by decisions made in the past.

The U.S. carpet industry provides an example of path dependence.[26] Roughly 85 percent of all carpets sold in the United States and almost one-half of all carpets sold worldwide come from carpet mills located within 65 miles of one city: Dalton, Georgia. While the U.S. manufacturing sector has suffered in recent decades, the carpet industry has flourished. Companies not clustered near Dalton face a disadvantage because they cannot readily access the required know-how, skilled labor, suppliers, low-cost infrastructure, and so on needed to be competitive.

But why Dalton? Two somewhat random events combined. First, the boom after World War II drew many manufacturers South to escape restrictions placed upon them in the North, such as higher taxation or the demands of unionized labor. Second, technological progress allowed industrial-scale production of tufted textiles to be used *as substitutes for the more expensive wool.* This innovation emerged in and near Dalton. This historical accident explains why today almost all U.S. carpet mills are located in a relatively small region, including world leaders Shaw Industries and Mohawk Industries.

Path dependence also rests on the notion that time cannot be compressed at will. While management can compress resources such as labor and R&D into a shorter period, the push will not be as effective as when a firm spreads out its effort and investments over a longer period. Trying to achieve the same outcome in less time, even with higher investments, tends to lead to inferior results, due to *time compression diseconomies.*[27]

Consider GM's problems in providing a competitive alternative to the highly successful Toyota Prius, a hybrid electric vehicle. Its problems highlight path dependence and time compression issues. The California Air Resource Board (CARB) in 1990 passed a mandate for introducing zero-emissions cars, which stipulated that 10 percent of new vehicles sold by carmakers in the state must have zero emissions by 2003. This mandate not only accelerated research in alternative energy sources for cars, but also led to the development of the first fully electric production car, GM's EV1. GM launched the car in California and Arizona in 1996. Competitive models followed, with the Toyota RAV EV and the Honda EV. In this case, regulations in the legal environment fostered innovation in the automobile industry (see discussion of PESTEL forces in Chapter 3).

Companies not only feel the nudge of forces in their environment but can also push back. The California mandate on zero emissions, for example, did not stand.[28] Several stakeholders, including the car and oil companies, fought it through lawsuits and other actions. CARB ultimately gave in to the pressure and abandoned its zero-emissions mandate. When the mandate was revoked, GM recalled and destroyed its EV1 electric vehicles and terminated its electric-vehicle program. This decision turned out to be a strategic error that would haunt GM a decade or so later. Although GM was the leader among car companies in electric vehicles in the mid-1990s, it did not have a competitive model to counter the Toyota Prius when its sales took off in the early 2000s.

The Chevy Volt (a plug-in hybrid), GM's first major competition to the Prius, was delayed by over a decade because GM had to start its electric-vehicle program basically from scratch. While GM sold about 50,000 Chevy Volts worldwide, Toyota sold over 6 million Prius cars. Moreover, when Nissan introduced its all-electric Leaf in 2010, GM did not have an all-electric vehicle in its lineup. In the meantime, Nissan sold over 250,000 Leafs worldwide.

Not having an adequate product lineup during the early 2000s, GM's U.S. market share dropped below 20 percent in 2009 (from over 50 percent a few decades earlier), the year it filed for bankruptcy. GM subsequently reorganized under Chapter 11 of the U.S. bankruptcy code, and relisted on the New York Stock Exchange in 2010.

Collaborating with LG Corp. of Korea, GM introduced the Chevy Bolt, an all-electric vehicle in 2017.[29] Although some of its features, such as a 230-mile range on a single charge, look attractive, it remains to be seen if the Chevy Bolt will do well in the marketplace. This is because competition did not stand still either. In the meantime, Tesla (featured in ChapterCase 1) is hoping that its new Model 3 will take the mass market of electric cars by storm, as it is priced at some $35,000, much lower than its luxury cars (Model S and Model X).

One important take-away here is that once the train of new capability development has left the station, it is hard to jump back on because of path dependence. Moreover, firms cannot compress time at will; indeed, learning and improvements must take place over time, and existing competencies must constantly be nourished and upgraded.

Strategic decisions generate long-term consequences due to path dependence and time-compression diseconomies; they are not easily reversible. A competitor cannot imitate or create core competencies quickly, nor can one buy a reputation for quality or innovation on the open market. These types of valuable, rare, and costly-to-imitate resources, capabilities, and competencies must be built and organized effectively over time, often through a painstaking process that frequently includes learning from failure.

causal ambiguity
A situation in which the cause and effect of a phenomenon are not readily apparent.

CAUSAL AMBIGUITY. **Causal ambiguity** describes a situation in which the cause and effect of a phenomenon are not readily apparent. To formulate and implement a strategy that enhances a firm's chances of gaining and sustaining a competitive advantage, managers need to have a hypothesis or theory of how to compete. A hypothesis is simply a specific statement that proposes an explanation of a phenomenon (such as competitive advantage), while a theory is a more generalized explanation of what causes what, and why. This implies that managers need to have some kind of understanding about what causes superior or inferior performance, and why. Comprehending and explaining the underlying reasons of observed phenomena is far from trivial, however. Everyone can see that Apple has had several hugely successful innovative products such as the iMac, iPod, iPhone, and iPad, combined with its hugely popular iTunes services, leading to a decade of a sustainable competitive advantage. These successes stem from Apple's set of *V, R, I,* and *O* core competencies that supports its ability to continue to offer a variety of innovative products and to create an ecosystem of products and services.

A deep understanding, however, of exactly *why* Apple has been so successful is very difficult. Even Apple's managers may not be able to clearly pinpoint the sources of their success. Is it the visionary role that the late Steve Jobs played? Is it the rare skills of Apple's uniquely talented design team around Jonathan Ive? Is it the timing of the company's product introductions? Is it Apple CEO Tim Cook who adds superior organizational skills and puts all the pieces together when running the day-to-day operations? Or is it a combination of these factors? If the link between cause and effect is ambiguous for Apple's managers, it is that much more difficult for others seeking to copy a valuable resource, capability, or competency.

SOCIAL COMPLEXITY **Social complexity** describes situations in which different social and business systems interact. There is frequently no causal ambiguity as to how the *individual* systems such as supply chain management or new-product development work in isolation. They are often managed through standardized business processes such as Six Sigma or ISO 9000. Social complexity, however, emerges when two or more such systems are *combined*. Copying the emerging complex social systems is difficult for competitors because neither direct imitation nor substitution is a valid approach. The interactions between different systems create too many possible permutations for a system to be understood with any accuracy. The resulting social complexity makes copying these systems difficult, if not impossible, resulting in a valuable, rare, and costly-to-imitate resource that the firm is organized to exploit.

Look at it this way. A group of three people has three relationships, connecting every person directly with one another. Adding a fourth person to this group *doubles* the number of direct relationships to six. Introducing a fifth person increases the number of relationships to 10.[30] This gives you some idea of how complexity might increase when we combine different systems with many different parts.

In reality, firms may manage thousands of employees from all walks of life. Their interactions within the firm's processes, procedures, and norms make up its culture. Although an observer may conclude that Zappos' culture, with its focus on autonomous teams in a flat hierarchy to provide superior customer service, might be the basis for its competitive advantage, engaging in reverse social engineering to crack Zappos' code of success might be much more difficult. Moreover, an organizational culture that works for online retailer Zappos, led by CEO and chief happiness officer Tony Hsieh, might seed havoc for an aerospace and defense company such as Lockheed Martin, led by CEO Marillyn Hewson. This implies that one must understand competitive advantage within its organizational and industry context. Looking at individual elements of success without taking social complexity into account is a recipe for inferior performance, or worse.

Marillyn Hewson is CEO of Lockheed Martin, a global player in aerospace, defense, security, and advanced technology. Facing ever more complex challenges, such firms only thrive with a strong organization and a powerful CEO like Hewson.
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social complexity
A situation in which different social and business systems interact with one another.

INTELLECTUAL PROPERTY PROTECTION. **Intellectual property (IP) protection** is a critical intangible resource that can also help sustain a competitive advantage. The five major forms of IP protection are:[31]

- Patents
- Designs
- Copyrights
- Trademarks
- Trade secrets

intellectual property (IP) protection
A critical intangible resource that can provide a strong isolating mechanism, and thus help to sustain a competitive advantage.

The intent of IP protection is to prevent others from copying legally protected products or services. In many knowledge-intensive industries that are characterized by high research and development (R&D) costs, such as smartphones and pharmaceuticals, IP protection provides not only an incentive to make these risky and often large-scale investments in the first place, but also affords a strong isolating mechanism that is critical to a firm's ability to capture the returns to investment. Although the initial investment to create the first version of a new product or service is quite high in many knowledge-intensive industries, the *marginal cost* (i.e., the cost to produce the next unit) after initial invention is quite low. For example, Microsoft spends billions of dollars to develop a new version of its Windows operating system; once completed, the cost of the next "copy" is close to zero because it is just software code distributed online in digital form. In a similar fashion, the costs of developing a new prescription drug, a process often taking more than a decade, are estimated to be over $2.5 billion.[32] Rewards to IP-protected products or services, however, can be high.

During a little over 14 years on the market, Pfizer's Lipitor, the world's best-selling drug, accumulated over $125 billion in sales.[33]

IP protection can make direct imitation attempts difficult, if not outright illegal. A U.S. court, for example, has found that Samsung infringed in some of its older models on Apple's patents and awarded some $600 million in damages.[34] In a similar fashion, Dr. Dre attracted significant attention and support from other artists in the music industry when he sued Napster, an early online music file-sharing service, and helped shut it down in 2001 because of copyright infringements.

IP protection does not last forever, however. Once the protection has expired the invention can be used by others. Patents, for example, usually expire 20 years after a patent is filed with the U.S. Patent and Trademark Office. In the next few years, patents protecting roughly $100 billion in sales of proprietary drugs in the pharmaceutical industry are set to expire. Once this happens, producers of generics (drugs that contain the same active ingredients as the original patent-protected formulation) such as Teva Pharmaceutical Industries of Israel enter the market, and prices fall drastically. Pfizer's patent on Lipitor expired in 2011. Just one year later, of the 55 million Lipitor prescriptions, 45 million (or more than 80 percent) were generics.[35] Drug prices fall by 20 to 80 percent once generic formulations become available.[36]

Taken together, each of the five isolating mechanisms discussed here (or combinations thereof) allow a firm to extend its competitive advantage. Although no competitive advantage lasts forever, a firm may be able to protect its competitive advantage (even for long periods) when it has consistently better expectations about the future value of resources, when it has accumulated a resource advantage that can be imitated only over long periods of time, when the source of its competitive advantage is causally ambiguous or socially complex, or when the firm possesses strong intellectual property protection.

LO 4-6

Outline how dynamic capabilities can enable a firm to sustain a competitive advantage

4.3 The Dynamic Capabilities Perspective

A firm's external environment is rarely stable (as discussed in Chapter 3). Rather, in many industries, the pace of change is ferocious. Firms that fail to adapt their core competencies to a changing external environment not only lose a competitive advantage but may even go out of business.

We've seen the merciless pace of change in consumer electronics retailing in the United States. Once a market leader, Circuit City's core competencies were in efficient logistics and superior customer service. But the firm neglected to upgrade and hone them over time. As a consequence, Circuit City was outflanked by Best Buy and online retailer Amazon, and went bankrupt. Best Buy encountered the same difficulties competing against Amazon just a few years later. Core competencies might form the basis for a competitive advantage at one point, but as the environment changes, the very same core competencies might later turn into *core rigidities*, retarding the firm's ability to change.[37]

core rigidity A former core competency that turned into a liability because the firm failed to hone, refine, and upgrade the competency as the environment changed.

A core competency can turn into a **core rigidity** if a firm relies too long on the competency without honing, refining, and upgrading as the environment changes.[38] Over time, the original core competency is no longer a good fit with the external environment, and it turns from an asset into a liability. Strategy Highlight 4.2 shows how Procter & Gamble failed to hone and upgrade its core competencies. As a consequence, P&G's strategy was no longer a good fit with a changing environment, leading to a competitive disadvantage.

The reason reinvesting, honing, and upgrading of resources and capabilities are so crucial to sustaining any competitive advantage is to prevent competencies from turning into

Strategy Highlight 4.2

When Will P&G Play to Win Again?

With revenues of some $65 billion and business in basically every country except North Korea, Procter & Gamble (P&G) is the world's largest consumer products company. Some of its category-defining brands include Ivory soap, Tide detergent, Febreze air freshener, Crest toothpaste, and Pampers diapers. Among its many offerings, P&G has more than 20 consumer brands in its lineup that each achieve over $1 billion in annual sales. P&G's iconic brands are a result of a clearly formulated and effectively implemented business strategy. The company pursues a differentiation strategy and attempts to create higher perceived value for its customers than its competitors by delivering products with unique features and attributes.

Creating higher perceived value generally goes along with higher product costs due to greater R&D and promotion expenses, among other things. Successful differentiators are able to command a premium price for their products, but they must also control their costs. Detailing how P&G created many market-winning brands, P&G's long-term CEO A.G. Lafley published (with strategy consultant Roger Martin) the best-selling book *Playing to Win: How Strategy Really Works* in 2013.

In recent years, however, P&G's strategic position has weakened considerably, and P&G seems to be losing rather than winning. P&G lost market share in key "product-country combinations," including beauty in the United States and oral care in China, amid an overall lackluster performance in many emerging economies. As a consequence, profits have declined. With P&G's sustained competitive disadvantage, its stock market valuation has fallen—by some $50 billion in 2015 alone. Meanwhile, its competitors such as Unilever, Colgate-Palmolive, and Kimberly-Clark posted strong gains. Many wonder, when will P&G play to win again?

Some of P&G's problems today are the result of attempting to achieve growth via an aggressive acquisition strategy in the 2000s. Given the resulting larger P&G revenue base, future incremental revenue growth for the entire company was harder to achieve. A case in point is P&G's $57 billion acquisition of Gillette in 2005, engineered by then-CEO Lafley. The

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value of this acquisition is now being called into question. Although Gillette dominates the retail space of the $3 billion wet shaving industry, P&G was caught off guard by how quickly razor sales moved online. Turned off by the high prices and the inconvenience of shopping for razors in locked display cases in retail stores, consumers flocked to online options in droves. The online market for razor blades has grown from basically zero just a few years ago to $300 million. Although this is currently only 10 percent of the overall market, the online market continues to grow rapidly. Disruptive online startups such as Dollar Shave Club and Harry's offer low-cost solutions via monthly subscription plans online.

Perhaps even more troubling is that P&G focused mainly on the U.S. market to leverage its existing competencies. Rather than inventing new category-defining products, P&G added more features to its established brands such as Olay's extra-moisturizing creams and ultra-soft and sensitive Charmin toilet paper, while raising prices. Reflecting higher value creation based on its differentiation strategy, P&G generally charges a 20 to 40 percent premium for its products in comparison to retailers' private-label and other brands. The strategic decision to focus on the domestic market, combined with incrementally adding minor features to its existing products, created serious problems for P&G.[39]

core rigidities (see Exhibit 4.3). This ability to hone and upgrade lies at the heart of the dynamic capabilities perspective. We defined *capabilities* as the organizational and managerial skills necessary to orchestrate a diverse set of resources and to deploy them strategically. Capabilities are by nature intangible. They find their expression in a company's structure, routines, and culture.

dynamic capabilities A firm's ability to create, deploy, modify, reconfigure, upgrade, or leverage its resources in its quest for competitive advantage.

The dynamic capabilities perspective adds, as the name suggests, a *dynamic* or time element. In particular, **dynamic capabilities** describe a firm's ability to create, deploy, modify, reconfigure, upgrade, or leverage its resources over time in its quest for competitive advantage.[40] Dynamic capabilities are essential to move beyond a short-lived advantage and create a sustained competitive advantage. For a firm to sustain its advantage, any fit between its internal strengths and the external environment must be dynamic. That is, the firm must be able to change its internal resource base as the external environment changes. The goal should be to develop resources, capabilities, and competencies that create a *strategic fit* with the firm's environment. Rather than creating a static fit, the firm's internal strengths should change with its external environment in a *dynamic* fashion.

A lack of strategic fit with a changing environment created at least two problems for Procter & Gamble in recent years (see Strategy Highlight 4.2). First, following the deep recession of 2008–2009, U.S. consumers moved away from higher-priced brands, such as those offered by P&G, to lower-cost alternatives. Moreover, P&G's direct rivals in branded goods, such as Colgate-Palmolive, Kimberly-Clark, and Unilever, were faster in cutting costs and prices in response to more frugal customers. P&G also fumbled launches of reformulated products such as Tide Pods (detergent sealed in single-use pouches) and the Pantene line of shampoos and conditioners. The decline in U.S. demand hit P&G especially hard because the domestic market delivers about one-third of sales, but almost two-thirds of profits for the company. Second, by focusing on the U.S. market, P&G not only missed out on the booming growth years that the emerging economies experienced during the 2000s, but it also left these markets to its rivals. As a consequence, Colgate-Palmolive, Kimberly-Clark, and Unilever all outperformed P&G in recent years.

As a result of its sustained competitive disadvantage, P&G also had a revolving door in its executive suites. From 2013 to 2015, P&G went through three CEOs. After 30 years with P&G, the former Army Ranger Robert McDonald was appointed CEO in 2009, but was replaced in spring 2013 in the face of P&G's deteriorating performance. The company's board of directors brought back A.G. Lafley. This was an interesting choice because Lafley had previously served as P&G's CEO from 2000 to 2009, and some of the strategic decisions that led to a weakening of P&G's strategic position were made under his watch. Lafley served a second term as CEO from 2013 to 2015. In late 2015, P&G named David Taylor as the new CEO, again promoting from within, while Lafley served as executive chairman until June 2016.

To strengthen its competitive position, P&G launched two strategic initiatives. First, P&G began to refocus its portfolio on the company's 70 to 80 most lucrative product-market combinations, which are responsible for 90 percent of P&G's revenues and almost all of its profits. Some argue that P&G had become too big and spread out to compete effectively in today's dynamic marketplace. To refocus on core products such as Tide, Pampers, and Olay (these three brands account for more than 50 percent of the company's revenues), P&G has sold or plans to divest almost 100 brands in its far-flung product portfolio, including well-known brands such as Iams pet food, Duracell batteries, Wella shampoos, Clairol hair dye, and CoverGirl makeup, but mainly a slew of lesser-known brands.

Part of this strategic initiative is also to expand P&G's presence in large emerging economies. As an example, P&G launched Tide in India and Pantene shampoos in Brazil. Moreover, P&G began to leverage its Crest brand globally, to take on Colgate-Palmolive's global dominance in toothpaste. Yet, the relatively strong dollar in recent years is hurting P&G's international results. Second, P&G implemented strict cost-cutting measures through eliminating all spending not directly related to selling. As part of its cost-cutting initiative, P&G also eliminated thousands of jobs.

The goal of the two strategic initiatives is to increase the perceived value of P&G's brands in the minds of the consumer, while lowering production costs. The combined effort should—if successful—increase P&G's economic value creation ($V - C$). The hope is that P&G's revised

business strategy would strengthen its strategic position and help it achieve a better strategic fit with the new environment. This should increase the likelihood that P&G can achieve a competitive advantage again. Through a number of investments in its intangible resource base, P&G is upgrading its dynamic capabilities, which had been neglected for a number of years as the consumer-products company failed to change with a changing environment.

Not only do dynamic capabilities allow firms to adapt to changing market conditions, but they also enable firms to *create market changes* that can strengthen their strategic position. These market changes implemented by proactive firms introduce altered circumstances, to which more reactive rivals might be forced to respond.

Apple's dynamic capabilities allowed it to redefine the markets for mobile devices and computing, in particular in music, smartphones, and media content. For the portable music market through its iPod and iTunes store, Apple generated environmental change to which Sony and others had to respond. With its iPhone, Apple redefined the market for smartphones, again creating environmental change to which competitors such as Samsung, BlackBerry, and Google (with its Motorola Mobility unit) needed to respond. Apple's introduction of the iPad redefined the media and tablet computing market, forcing competitors such as Amazon and Microsoft to respond. With the introduction of the Apple Watch it is attempting to shape the market for computer wearables in its favor. Dynamic capabilities are especially relevant for surviving and competing in markets that shift quickly and constantly, such as the high-tech space in which firms such as Apple, Google, Microsoft, and Amazon compete.

In the **dynamic capabilities perspective**, competitive advantage is the outflow of a firm's capacity to modify and leverage its resource base in a way that enables it to gain and sustain competitive advantage in a constantly changing environment. Given the accelerated pace of technological change, in combination with deregulation, globalization, and demographic shifts, dynamic markets today are the rule rather than the exception. As a response, a firm may create, deploy, modify, reconfigure, or upgrade resources so as to provide value to customers and/or lower costs in a dynamic environment. The essence of this perspective is that competitive advantage is not derived from static resource or market advantages, but from a *dynamic reconfiguration* of a firm's resource base.

dynamic capabilities perspective A model that emphasizes a firm's ability to modify and leverage its resource base in a way that enables it to gain and sustain competitive advantage in a constantly changing environment.

One way to think about developing dynamic capabilities and other intangible resources is to distinguish between resource stocks and resource flows.[41] In this perspective, **resource stocks** are the firm's current level of intangible resources. **Resource flows** are the firm's level of investments to maintain or build a resource. A helpful metaphor to explain the differences between resource stocks and resource flows is a bathtub that is being filled with water (see Exhibit 4.6).[42] The amount of water in the bathtub indicates a company's level of a specific *intangible resource stock*—such as its dynamic capabilities, new-product development, engineering expertise, innovation capability, reputation for quality, and so on.[43]

resource stocks The firm's current level of intangible resources.

resource flows The firm's level of investments to maintain or build a resource.

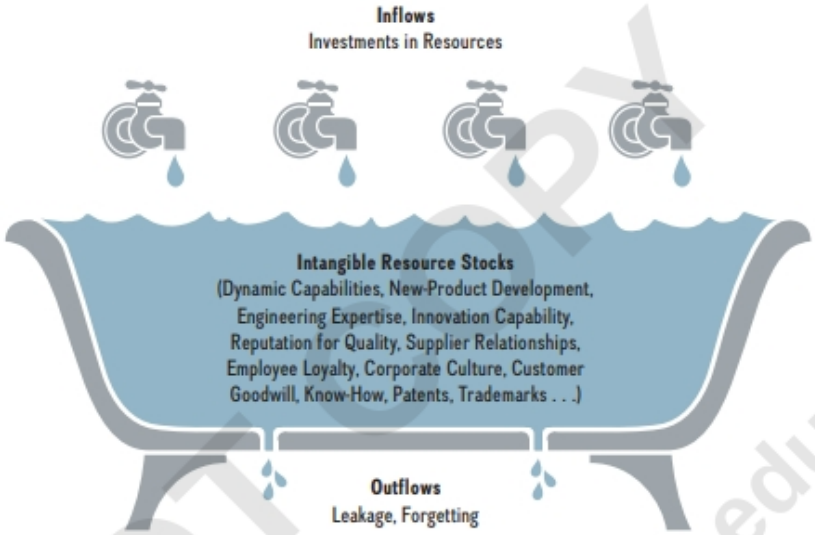
Intangible resource stocks are built through investments over time. These resource flows are represented in the drawing by the different faucets, from which water flows into the tub. These faucets indicate investments the firm can make in different intangible resources. Investments in building an innovation capability, for example, differ from investments made in marketing expertise. Each investment flow would be represented by a different faucet.

How fast a firm is able to build an intangible resource—how fast the tub fills—depends on how much water comes out of the faucets and how long the faucets are left open. Intangible resources are built through continuous investments and experience over time. Organizational learning also fosters the increase of intangible resources. Many intangible resources, such as IBM's expertise in cognitive computing, take a long time to build. IBM's quest for cognitive computing began in 1997 after its Deep Blue computer (based on artificial intelligence) beat reigning chess champion Garry Kasparov. It has invested close to $25 billion to build a deep capability in cognitive computing with the goal to take advantage of business opportunities in big data and analytics. Its efforts were publicized when its

EXHIBIT 4.6

The Bathtub Metaphor: The Role of Inflows and Outflows in Building Stocks of Intangible Resources

SOURCE: Figure based on metaphor used in I. Dierickx and K. Cool (1989), "Asset stock accumulation and sustainability of competitive advantage," *Management Science* 35: 1504–1513.



Watson, a supercomputer capable of answering questions posed in natural language, went up against 74-time *Jeopardy!* quiz show champion Ken Jennings and won. Watson has demonstrated its skill in many professional areas where deep domain expertise is needed when making decisions in more or less real time: a wealth manager making investments, a doctor working with a cancer patient, an attorney working on a complex case, or even a chef in a five-star restaurant creating a new recipe. Moreover, cognitive computer systems get better over time as they learn from experience.

How fast the bathtub fills, however, also depends on how much water leaks out of the tub. The outflows represent a reduction in the firm's intangible resource stocks. Resource leakage might occur through employee turnover, especially if key employees leave. Significant resource leakage can erode a firm's competitive advantage. A reduction in resource stocks can occur if a firm does not engage in a specific activity for some time and forgets how to do this activity well.

According to the dynamic capabilities perspective, the managers' task is to decide which investments to make over time (i.e., which faucets to open and how far) in order to best position the firm for competitive advantage in a changing environment. Moreover, managers also need to monitor the existing intangible resource stocks and their attrition rates due to leakage and forgetting. This perspective provides a dynamic understanding of capability development to allow a firm's continuous adaptation to and superior performance in a changing external environment.

value chain
The internal activities a firm engages in when transforming inputs into outputs; each activity adds incremental value.

LO 4-7

Apply a value chain analysis to understand which of the firm's activities in the process of transforming inputs into outputs generate differentiation and which drive costs.

4.4 The Value Chain and Strategic Activity Systems

THE VALUE CHAIN

The **value chain** describes the internal activities a firm engages in when transforming inputs into outputs.[44] Each activity the firm performs along the horizontal chain adds incremental value—raw materials and other inputs are transformed into components that are assembled into finished products or services for the end consumer. Each activity the firm performs along the value chain also adds incremental costs. A careful analysis of the

value chain allows managers to obtain a more detailed and fine-grained understanding of how the firm's *economic value creation* ($V - C$) breaks down into a distinct set of activities that help determine perceived value (V) and the costs (C) to create it. The value chain concept can be applied to basically any firm, from those in manufacturing industries to those in high-tech ones or service firms.

A firm's core competencies are deployed through its activities (see Exhibit 4.3). A firm's activities, therefore, are one of the key internal drivers of performance differences across firms. *Activities* are distinct actions that enable firms to add incremental value at each step by transforming inputs into goods and services. Managing a supply chain, running the company's IT system and websites, and providing customer support are all examples of distinct activities. Activities are narrower than functional areas such as marketing, because each functional area is made up of a set of distinct activities.

To build its uniquely cool brand image, Beats Electronics engages in a number of distinct activities. Its iconic Beats headphones are designed by Dr. Dre. To create special editions such as lightweight Beats for sports, Dr. Dre taps into his personal network and works with basketball stars such as Kobe Bryant. Once designed, Beats manufactures its high-end headphones (before the Apple acquisition, that was done in conjunction with Monster Cable Products, a California-based company). Other distinct activities concern the marketing and sales of its products. Beats has not only marketing savvy in product placement and branding with a large number of celebrities across different fields, but it also uses the same savvy in other distinct activities such as packaging and product presentation to create a premium unboxing experience and superb displays in retail outlets—especially important now that its products are in Apple stores. In sum, a number of distinct activities along the value chain are performed to create Beats by Dr. Dre, from initial design to a unique sales experience and after-sales service.

As shown in the generic value chain in Exhibit 4.7, the transformation process from inputs to outputs is composed of a set of distinct activities. When a firm's distinct activities generate value greater than the costs to create them, the firm obtains a profit margin (see Exhibit 4.7), assuming the market price the firm is able to command exceeds the costs of value creation. A generic value chain needs to be modified to capture the

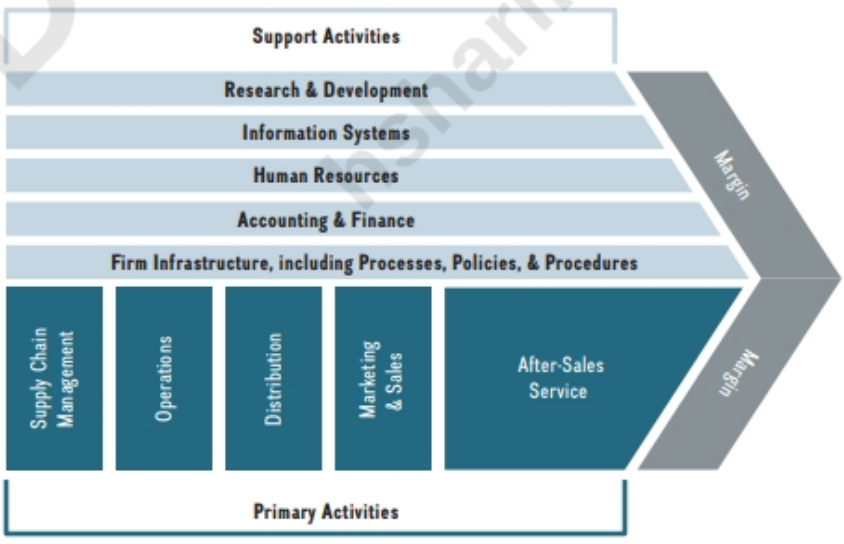


EXHIBIT 4.7
A Generic Value Chain: Primary and Support Activities

activities of a specific business. Retail chain American Eagle Outfitters, for example, needs to identify suitable store locations, either build or rent stores, purchase goods and supplies, manage distribution and store inventories, operate stores both in the brick-and-mortar world and online, hire and motivate a sales force, create payment and IT systems or partner with vendors, engage in promotions, and ensure after-sales services including returns. A maker of semiconductor chips such as Intel, on the other hand, needs to engage in R&D, design and engineer semiconductor chips and their production processes, purchase silicon and other ingredients, set up and staff chip fabrication plants, control quality and throughput, engage in marketing and sales, and provide after-sales customer support.

As shown in Exhibit 4.7, the value chain is divided into primary and support activities. The **primary activities** add value directly as the firm transforms inputs into outputs—from raw materials through production phases to sales and marketing and finally customer service, specifically

primary activities Firm activities that add value directly by transforming inputs into outputs as the firm moves a product or service horizontally along the internal value chain.

- Supply chain management.
- Operations.
- Distribution.
- Marketing and sales.
- After-sales service.

Other activities, called **support activities**, add value indirectly. These activities include

support activities Firm activities that add value indirectly, but are necessary to sustain primary activities.

- Research and development (R&D).
- Information systems.
- Human resources.
- Accounting and finance.
- Firm infrastructure including processes, policies, and procedures.

To help a firm achieve a competitive advantage, each distinct activity performed needs to either add incremental value to the product or service offering or lower its relative cost. Discrete and specific firm activities are the basic units with which to understand competitive advantage because they are the drivers of the firm's relative costs and level of differentiation the firm can provide to its customers. Although the resource-based view of the firm helps identify the integrated set of resources and capabilities that are the building blocks of core competencies, the value chain perspective enables managers to see how competitive advantage flows from the firm's distinct set of activities. This is because a firm's core competency is generally found in a network linking different but distinct activities, each contributing to the firm's strategic position as either low-cost leader or differentiator.

STRATEGIC ACTIVITY SYSTEMS

LO 4-8

Identify competitive advantage as residing in a network of distinct activities.

A **strategic activity system** conceives of a firm as a network of interconnected activities.[45] Strategic activity systems are socially complex and causally ambiguous, thus enhancing the possibility that a competitive advantage can be sustained over time. While one can easily observe several elements of a strategic activity system, the capabilities necessary to orchestrate and manage the network of distinct activities cannot be so easily observed and therefore are difficult to imitate.

strategic activity system The conceptualization of a firm as a network of interconnected activities.

Let's assume Firm A's activity system, which lays the foundation of its competitive advantage, consists of 25 interconnected activities. Attracted by Firm A's competitive advantage, competitor Firm B closely monitors this activity system and begins to copy it through direct imitation. Moreover, Firm B is very good at copying; it achieves a 90 percent accuracy rate. Will Firm B, as the imitator, be able to copy Firm A's activity

system and negate its competitive advantage? Far from it. Firm A's activity system is based on 25 interconnected activities. Because each of Firm A's 25 activities is copied with a 90 percent accuracy, Firm B's overall copying accuracy of the entire system is $0.9 \times 0.9 \times 0.9 \ldots$, repeated 25 times. The probabilities quickly compound to render copying an entire activity system nearly impossible. In this case, Firm B's "success" in copying Firm A's activity system is $0.9^{25} = 0.07$, meaning that Firm B's resulting activity system will imitate Firm A's with only a 7 percent accuracy rate. Thus, the concept of the strategic activity system demonstrates the difficulty of using imitation as a path to competitive advantage.

Strategic activity systems need to evolve over time if a firm is to sustain a competitive advantage. Procter & Gamble's difficulties discussed in Strategy Highlight 4.2 show what happens if a firm's strategic activity system does not evolve. This generally leads to a competitive disadvantage, because the external environment changes and also because a firm's competitors get better in developing their own activity systems and capabilities. Managers need to adapt their firm's strategic activity system by upgrading value-creating activities that respond to changing environments. To gain and sustain competitive advantage, strategic leaders may add new activities, remove activities that are no longer relevant, and upgrade activities that have become stale or somewhat obsolete. Each of these changes would require changes to the resources and capabilities involved.

Let's consider The Vanguard Group, one of the world's largest investment companies.[46] It serves individual investors, financial professionals, and institutional investors such as state retirement funds. Vanguard's mission is to help clients reach their financial goals by being their highest-value provider of investment products and services.[47] Since its founding in 1929, Vanguard has emphasized low-cost investing and quality service for its clients. Vanguard's average expense ratio (fees as a percentage of total net assets paid by investors) is generally the lowest in the industry.[48] The Vanguard Group also is a pioneer in passive index-fund investing. Rather than picking individual stocks and trading frequently as done in traditional money management, a mutual fund tracks the performance of an index (such as the Standard & Poor's 500 or the Dow Jones 30), and discourages active trading and encourages long-term investing.

Despite this innovation in investing, Vanguard's strategic activity system needed to evolve over time as the company grew and market conditions as well as competitors changed, in order to gain and sustain a competitive advantage. Let's compare how The Vanguard Group's strategic activity developed over the past 20 years, from 1997 to 2017.

In 1997, The Vanguard Group had less than $500 million of assets under management. It pursued its mission of being the highest-value provider of investment products and services through its unique set of interconnected activities depicted in Exhibit 4.8. The six larger ovals depict Vanguard's strategic core activities: strict cost control, direct distribution, low expenses with savings passed on to clients, offering of a broad array of mutual funds, efficient investment management approach, and straightforward client communication and education. These six strategic themes were supported by clusters of tightly linked activities (smaller circles), further reinforcing the strategic activity network.

The needs of Vanguard's customers, however, have changed since 1997. Exhibit 4.9 shows Vanguard's strategic activity system in 2017. Twenty years later, The Vanguard Group had grown some eight times in size, from a mere $500 billion (in 1997) to $4 trillion (in 2017) of assets under management.[49]

Again, the large ovals in Exhibit 4.9 symbolize Vanguard's strategic core activities that help it realize its strategic position as the low-cost leader in the industry. However, the system evolved over time as Vanguard's management added a new core activity—customer segmentation—to the six core activities already in place in 1997 (still valid in 2017).

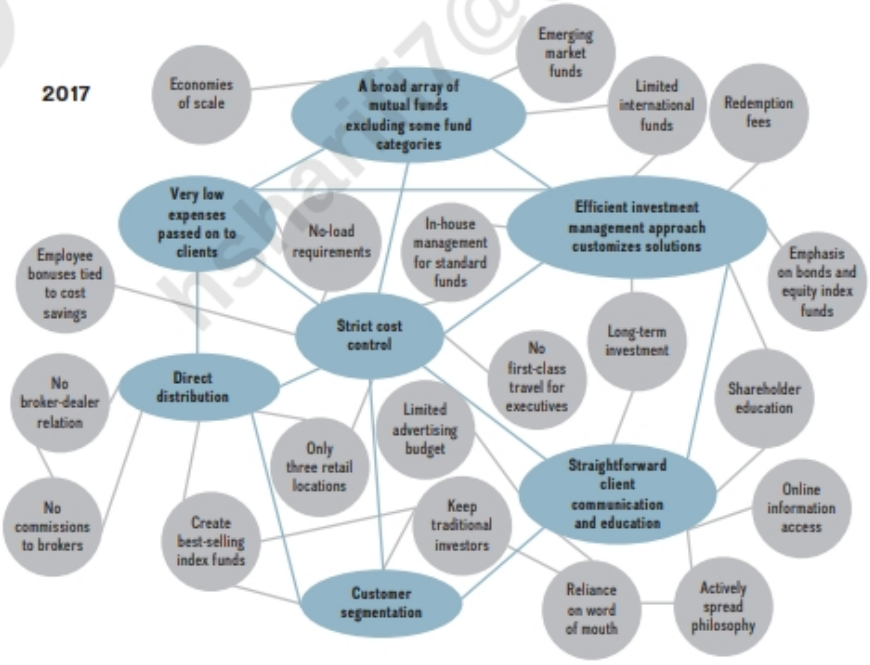
EXHIBIT 4.8

The Vanguard Group's Activity System in 1997

SOURCE: Adapted from N. Siggelkow (2002), "Evolution toward fit," *Administrative Science Quarterly* 47: 146.

EXHIBIT 4.9

The Vanguard Group's Activity System in 2017



Vanguard's managers put in place the customer-segmentation core activity, along with two new support activities, to address a new customer need that could not be met with its older configuration. Its 1997 activity system did not allow Vanguard to continue to provide quality service targeted at different customer segments at the lowest possible cost. The 2017 activity-system configuration allows Vanguard to customize its service offerings: It now separates its more traditional customers, who invest for the long term, from more active investors, who trade more often but are attracted to Vanguard funds by the firm's high performance and low cost.

The core activity Vanguard added to its strategic activity system was developed with great care, to ensure that it not only fit well with its existing core activities but also further reinforced its activity network. For example, the new activity of "Create best-selling index funds" also relies on direct distribution; it is consistent with and further reinforces Vanguard's low-cost leadership position. As a result of achieving its "best-selling" goal, Vanguard is now the world's second-largest investment-management company, just behind BlackRock, with $5 trillion of assets under management. This allows Vanguard to benefit from economies of scale (e.g., cost savings accomplished through a larger number of customers served and a greater amount of assets managed), further driving down cost. In turn, by lowering its cost structure, Vanguard can offer more customized services without raising its overall cost. Despite increased customization, Vanguard still has one of the lowest expense ratios in the industry. Even in a changing environment, the firm continues to pursue its strategy of low-cost investing combined with quality service. If firms add activities that don't fit their strategic positioning (e.g., if Vanguard added local retail offices in shopping malls, thereby increasing operating costs), they create "strategic misfits" that are likely to erode a firm's competitive advantage.

The Vanguard Group's core competency of low-cost investing while providing quality service for its clients is accomplished through a unique set of interconnected primary and support activities including strict cost control, direct distribution, low expenses with savings passed on to clients, a broad array of mutual funds, an efficient investment management approach, and straightforward client communication and education.

In summary, a firm's competitive advantage can result from its unique network of activities. The important point, however, is that a static fit with the current environment is not sufficient; rather, a firm's unique network of activities must evolve over time to take advantage of new opportunities and mitigate emerging threats. Moreover, by using activity-based accounting (which first identifies distinct activities in an organization, and then assigns costs to each activity based on estimates of all resources consumed) and by benchmarking the competition, one can identify core competence. In Chapter 5, we take a closer look at how to measure and assess competitive advantage.

4.5 Implications for Strategic Leaders

LO 4-9

Conduct a SWOT analysis to generate insights from external and internal analysis and derive strategic implications.

We've now reached a significant point: We can combine external analysis from Chapter 3 with the internal analysis just introduced. Together the two allow you to begin formulating a strategy that matches your firm's internal resources and capabilities to the demands of the external industry environment. Ideally, strategic leaders want to leverage their firm's internal strengths to exploit external opportunities, while mitigating internal weaknesses and external threats. Both types of analysis in tandem allow managers to formulate a strategy that is tailored to their company, creating a unique fit between the company's internal resources and the external environment. A *strategic fit* increases the likelihood that a firm is able to gain a competitive advantage. If a firm achieves a *dynamic* strategic fit, it is likely to be able to *sustain* its advantage over time.

USING SWOT ANALYSIS TO GENERATE INSIGHTS FROM EXTERNAL AND INTERNAL ANALYSIS

SWOT analysis
A framework that allows managers to synthesize insights obtained from an internal analysis of the company's strengths and weaknesses (S and W) with those from an analysis of external opportunities and threats (O and T) to derive strategic implications.

We synthesize insights from an internal analysis of the company's *strengths* and *weaknesses* with those from an analysis of external *opportunities* and *threats* using the **SWOT analysis**. Internal strengths (S) and weaknesses (W) concern resources, capabilities, and competencies. Whether they are strengths or weaknesses can be determined by applying the VRIO framework. A resource is a weakness if it is not valuable. In this case, the resource does not allow the firm to exploit an external opportunity or offset an external threat. A resource, however, is a strength and a core competency if it is valuable, rare, costly to imitate, and the firm is organized to capture at least part of the economic value created.

External opportunities (O) and threats (T) are in the firm's general environment and can be captured by PESTEL and Porter's five forces analyses (discussed in the previous chapter). An attractive industry as determined by Porter's five forces, for example, presents an external opportunity for firms not yet active in this industry. On the other hand, stricter regulation for financial institutions, for example, might represent an external threat to banks.

A SWOT analysis allows the strategist to evaluate a firm's current situation and future prospects by simultaneously considering internal and external factors. The SWOT analysis encourages managers to scan the internal and external environments, looking for any relevant factors that might affect the firm's current or future competitive advantage. The focus is on internal and external factors that can affect—in a positive or negative way—the firm's ability to gain and sustain a competitive advantage. To facilitate a SWOT analysis, managers use a set of strategic questions that link the firm's internal environment to its external environment, as shown in Exhibit 4.10, to derive strategic implications. In this SWOT matrix, the horizontal axis is divided into factors that are *external to the firm* (the focus of Chapter 3) and the vertical axis into factors that are *internal to the firm* (the focus of this chapter).

In a first step, managers gather information for a SWOT analysis in order to link internal factors *(Strengths* and *Weaknesses)* to external factors *(Opportunities* and *Threats).* Next, managers use the SWOT matrix shown in Exhibit 4.10 to develop *strategic alternatives* for the firm using a four-step process:

1. Focus on the *Strengths–Opportunities* quadrant (top left) to derive "offensive" alternatives by using an internal strength to exploit an external opportunity.
2. Focus on the *Weaknesses–Threats* quadrant (bottom right) to derive "defensive" alternatives by eliminating or minimizing an internal weakness to mitigate an external threat.
3. Focus on the *Strengths–Threats* quadrant (top right) to use an internal strength to minimize the effect of an external threat.
4. Focus on the *Weaknesses–Opportunities* quadrant (bottom left) to shore up an internal weakness to improve its ability to take advantage of an external opportunity.

EXHIBIT 4.10
Strategic Questions within the SWOT Matrix

		External to Firm	
	Strategic Questions	**Opportunities**	**Threats**
Internal to Firm	**Strengths**	*How can the firm use internal strengths to take advantage of external opportunities?*	*How can the firm use internal strengths to reduce the likelihood and impact of external threats?*
	Weaknesses	*How can the firm overcome internal weaknesses that prevent it from taking advantage of external opportunities?*	*How can the firm overcome internal weaknesses that will make external threats a reality?*

In a final step, the strategist needs to carefully evaluate the pros and cons of each strategic alternative to select one or more alternatives to implement. Managers need to carefully explain their decision rationale, including why other strategic alternatives were rejected.

Although the SWOT analysis is a widely used management framework, a word of caution is in order. A problem with this framework is that a strength can also be a weakness and an opportunity can also simultaneously be a threat. Earlier in this chapter, we discussed the location of Google's headquarters in Silicon Valley and near several universities as a key resource for the firm. Most people would consider this a strength for the firm. However, California has a high cost of living and is routinely ranked among the worst of the U.S. states in terms of "ease of doing business." In addition, this area of California is along major earthquake fault lines and is more prone to natural disasters than many other parts of the country. So is the location a strength or a weakness? The answer is "it depends." In a similar fashion, is global warming an opportunity or threat for car manufacturers? If governments enact higher gasoline taxes and make driving more expensive, it can be a threat. If, however, carmakers respond to government regulations by increased innovation through developing more fuel-efficient cars as well as low- or zero-emission engines such as hybrid or electric vehicles, it may create more demand for new cars and lead to higher sales.

To make the SWOT analysis an effective management tool, the strategist must first conduct a thorough external and internal analysis, as laid out in Chapters 3 and 4. This sequential process enables the strategist to ground the analysis in rigorous theoretical frameworks before using SWOT to synthesize the results from the external and internal analyses in order to derive a set of strategic options.

You have now acquired the toolkit with which to conduct a complete strategic analysis of a firm's internal and external environments. In the next chapter, we consider various ways to assess and measure competitive advantage. That chapter will complete Part 1, on strategy analysis, in the AFI framework (see Exhibit 1.3).

CHAPTER**CASE 4** / Consider This . . .

ALTHOUGH MANY observers are convinced that Apple purchased Beats Electronics for the coolness of its brand and to gain a stronger position in the music industry, others are suggesting that what Apple is really buying are the talents that Beats co-founder Jimmy Iovine and Dr. Dre bring to the table. Since the death of Steve Jobs, Apple's visionary leader, the company has been lacking the kind of inspired personality it needs to remain a cultural icon. The critics argue that what Apple really needs is someone with a creative vision combined with a wide-reaching industry network and the ability to close a deal, especially in music where the personalities of celebrities are known to be idiosyncratic. In music jargon, Apple is in need of a "front man." With the acquisition of Beats, it got two of the greatest creative talents in the music industry, with a long successful track record and deep and far-reaching networks.

Dr. Dre and Jimmy Iovine of Beats.

©Kevin Mazur/WireImage/Getty Images

Iovine is of the opinion that Beats had always belonged with Apple. Iovine and Dr. Dre set out to model Beats Electronics after Apple's unique ability to marry culture and technology. Intriguingly, both Iovine and Dr. Dre took on senior positions at Apple. They continue to link Beats with today's top talent, even as some celebrities, such as Ariana Grande and Rihanna, take a leaf from the Beats playbook. Some singers now burnish personal brands with limited release headphones from other vendors; Grande's wireless Cat Ear Headphones (Brookstone, $150) and Rihanna's bedazzled tiara (Friends/Dolce & Gabanna, $9,000) are just two examples.

That Beats' founders keep ongoing roles indicates how much Apple's culture has changed under CEO Tim Cook.

Indeed, Iovine and Dr. Dre were not the first superstars from flashy industries he brought to Apple. In 2013, Apple hired former Burberry CEO Angela Ahrendts to head its retail operations. Bringing in superstars from the flashy industries of music or fashion to Apple, let alone into senior executive roles, would have been unthinkable under Jobs. Under his top-down leadership, only Apple products introduced to the public by himself in well-rehearsed theatrical launches were allowed to shine.

Questions

1. Which music streaming service do you use, if any? Why are you using this particular service and not others? Are you a paid subscriber? Why or why not?
2. The ChapterCase argues that Beats Electronics' core competency lies in its marketing savvy and in Dr. Dre's coolness factor. Do you agree with this assessment? Why or why not?
3. If you believe that Apple bought Beats Electronics to bring Jimmy Iovine and Dr. Dre into Apple, what are the potential downsides of this multibillion-dollar "acqui-hire" (an acquisition to hire key personnel)?
4. If Beats Electronics' core competencies are indeed intangibles, such as coolness and marketing savvy, do you think these competencies will remain as valuable under Apple's ownership? Why or why not?
5. The ChapterCase provides at least three theories why Apple purchased Beats Electronics. Briefly sketch each of them. Which of those do you believe is most accurate, and why?

TAKE-AWAY CONCEPTS

This chapter demonstrated various approaches to analyzing the firm's *internal environment,* as summarized by the following learning objectives and related take-away concepts.

LO 4-1 / Differentiate among a firm's core competencies, resources, capabilities, and activities.

- *Core competencies* are unique, deeply embedded, firm-specific strengths that allow companies to differentiate their products and services and thus create more value for customers than their rivals, or offer products and services of acceptable value at lower cost.
- *Resources* are any assets that a company can draw on when crafting and executing strategy.
- *Capabilities* are the organizational and managerial skills necessary to orchestrate a diverse set of resources to deploy them strategically.
- *Activities* are distinct and fine-grained business processes that enable firms to add incremental value by transforming inputs into goods and services.

LO 4-2 / Compare and contrast tangible and intangible resources.

- *Tangible resources* have physical attributes and are visible.
- *Intangible resources* have no physical attributes and are invisible.
- Competitive advantage is more likely to be based on intangible resources.

LO 4-3 / Evaluate the two critical assumptions behind the resource-based view.

- The first critical assumption—*resource heterogeneity*—is that bundles of resources, capabilities, and competencies differ across firms. The resource bundles of firms competing in the same industry (or even the same strategic group) are unique to some extent and thus differ from one another.
- The second critical assumption—*resource immobility*—is that resources tend to be "sticky" and don't move easily from firm to firm. Because of that stickiness, the resource differences that exist between firms are difficult to replicate and, therefore, can last for a long time.

LO 4-4 / Apply the VRIO framework to assess the competitive implications of a firm's resources.

- For a firm's resource to be the basis of a competitive advantage, it must have VRIO attributes: