5 Analyzing Resources and Capabilities

One gets paid only for strengths; one does not get paid for weaknesses. The question, therefore, is first: What are our specific strengths? And then: Are they the right strengths? Are they the strengths that fit the opportunities of tomorrow, or are they the strengths that fitted those of yesterday? Are we deploying our strengths where the opportunities no longer are, or perhaps never were? And finally, what additional strengths do we have to acquire?

— PETER DRUCKER[1]

You've gotta do what you do well.

—LUCINO NOTO, FORMER VICE CHAIRMAN, EXXONMOBIL

OUTLINE

Introduction and Objectives

In Chapter 1, I noted that the focus of strategy thinking has been shifted from the external environment of the firm toward its internal environment. In this chapter, we will make the same transition. Looking within the firm, we will concentrate our attention on the resources and capabilities that firms possess. This provides the internal foundations for our analysis of competitive advantage (which complements Chapter 3's discussion of key success factors—the external foundations of competitive advantage).

By the time you have completed this chapter, you will be able to:

- Appreciate the role of a firm's resources and capabilities as a basis for formulating strategy.
- Identify the resources and capabilities of a firm.
- Evaluate the potential for a firm's resources and capabilities to confer sustainable competitive advantage.
- Formulate strategies that exploit internal strengths while defending against internal weaknesses.

I begin by explaining why a company's resources and capabilities are so important to its strategy.

The Role of Resources and Capabilities in Strategy Formulation

Strategy is concerned with matching a firm's resources and capabilities to the opportunities that arise in the external environment. So far, our emphasis has been on identifying profit opportunities in the external environment of the firm. In this chapter, our emphasis shifts to the internal environment of the firm—specifically, with the resources and capabilities of the firm.

There is nothing new in the idea that strategy should exploit the resource and capability strengths of a person or an organization. The biblical tale of David and Goliath can be interpreted from this perspective (Strategy Capsule 5.1). However, in recent decades, two factors have focused increased attention on the role of resources and capabilities as the basis for strategy. First, as firms' industry environments have become more unstable, so internal resources and capabilities rather than external markets offer a more secure basis for strategy. Second, competitive advantage rather than industry attractiveness has emerged as the primary source of superior profitability. Let us consider each of these factors.

Basing Strategy on Resources and Capabilities

During the 1990s, ideas concerning the role of resources and capabilities in coalesced into what has become known as the *resource-based view of the firm*—a conceptualization of the firm as a collection of resources and capabilities that form the basis of competitive advantage and the foundation for strategy.[2]

STRATEGY CAPSULE 5.1

David and Goliath

In about 1000 BC, David, an Israeli shepherd boy, took up the challenge of meeting Goliath, the champion of the Philistines in single combat. Goliath's "height was six cubits and a span [three meters]. He had a bronze helmet on his head and wore a coat of scale armor of bronze weighing five thousand shekels [58 kg]; on his legs he wore bronze greaves, and a bronze javelin was slung on his back." King Saul of the Israelites offered David armor and a helmet, but David discarded them: "'I cannot go in these,' he said to Saul, 'because I am not used to them.' . . . Then he took his staff in his hand, chose five smooth stones from the stream, put them in the pouch of his shepherd's bag and, with his sling in his hand, approached the Philistine. . . As the Philistine moved closer to attack him, David ran quickly toward the battle line to meet him. Reaching into his bag and taking out a stone, he slung it and struck the Philistine on the forehead. The stone sank into his forehead, and he fell face-down on the ground."

David's victory reflects a strategy based upon exploiting his three core strengths: courage and self-confidence, speed and mobility, and expertise with a sling. This strategy allowed him to negate Goliath's core strengths: size, advanced offensive and defensive equipment, and combat experience. Had he followed King Saul's advice and adopted a conventional strategy for armed single combat, the outcome would almost certainly have been very different.

Source: *Holy Bible* (New International Version): 1 Samuel 17: 39–49.

To understand why the resource-based view has had a major impact on strategy thinking, let us go back to the starting point for strategy formulation: the underlying purpose of the firm that can be answered by posing the question: "What is our business?" Conventionally, this question has been answered in terms of the market being served: "Who are our customers?" and "Which of their needs are we seeking to serve?" However, in a world where customer preferences are volatile and the identity of customers and the technologies for serving them are changing, a market-focused strategy may not provide the stability and constancy of direction needed to guide strategy over the long term. When the external environment is in a state of flux, the firm itself, in terms of the bundle of resources and capabilities it possesses, may be a more stable basis on which to define its identity.

This emphasis on resources and capabilities as the foundation of firm strategy was popularized by C. K. Prahalad and Gary Hamel in their 1990 landmark paper "The Core Competence of the Corporation."[3] The potential for capabilities to be the "roots of competitiveness," the sources of new products, and the foundation for strategy is exemplified by Honda and 3M, among other companies (Strategy Capsule 5.2).

The greater the rate of change in a firm's external environment, the more likely it is that internal resources and capabilities, rather than external market focus, will provide a secure foundation for long-term strategy. In fast-moving, technology-based industries, basing strategy upon capabilities can help firms to outlive the life cycles of their initial products. Microsoft's initial success was the result of its MS-DOS operating system for the IBM PC followed by Windows. However, its software development, marketing, and partnering capabilities have allowed Microsoft to expand from operating systems in to applications software (e.g., Office), Internet services (e.g., Xbox Live), and cloud-based computing services. W. L. Gore and Associates' distinctive capability is developing

STRATEGY CAPSULE 5.2

Basing Strategy upon Resources and Capabilities: Honda and 3M

Honda Motor Company has never defined itself either as a motorcycle or an automobile company. As Figure 5.1 shows, since its founding in 1948, its development of expertise in designing and manufacturing engines (some of it honed on the race track) has taken it from motorcycles to a wide range of products that embody internal combustion engines.

3M Corporation (originally Minnesota Mining and Manufacturing) has expanded from sandpaper into over 55,000 industrial, office, medical, and household products. Is it a conglomerate?

Certainly not, claims 3M. Its vast product range rests on a cluster of technological capabilities that it has systematically developed for more than a century (Figure 5.2).

FIGURE 5.1 Key initiatives at Honda Motor Company

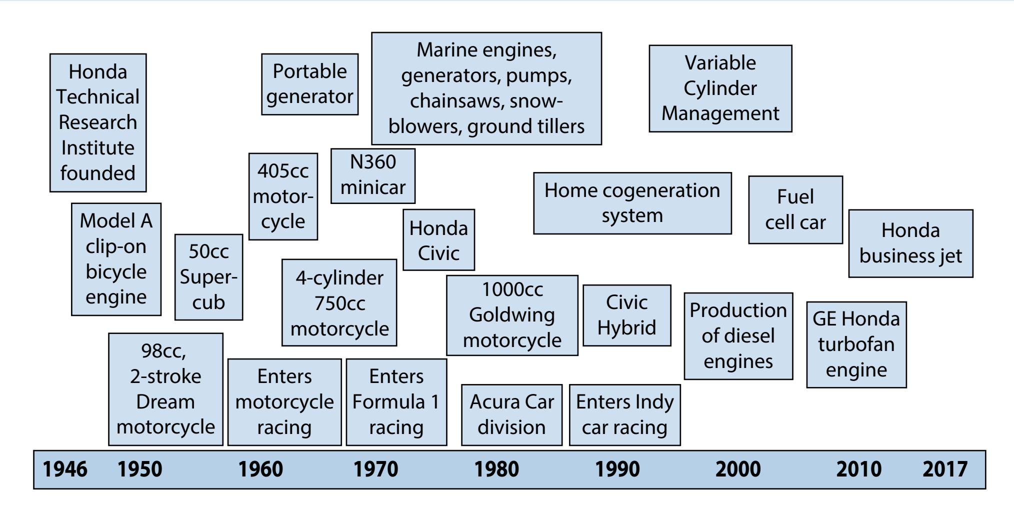
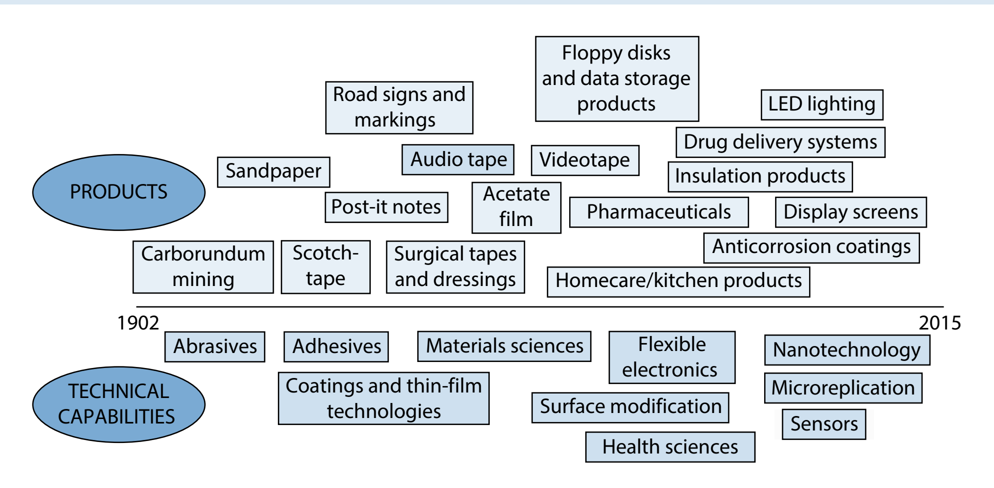


FIGURE 5.2 The evolution of products and technical capabilities at 3M



product applications for the polymer, PTFE. This has taken W. L. Gore from rainwear fabric (Gore-Tex) to dental floss, guitar strings, cardiac implants, fiber optic cables, and a host of other products.

Conversely, those companies that attempted to maintain their market focus in the face of radical technological change have often experienced huge difficulties in building the new capabilities needed to serve their customers.

The saga of Eastman Kodak is a classic example. Its dominance of the world market for photographic products was threatened by digital imaging. Kodak invested billions of dollars developing digital technologies and digital imaging products. Yet, in January 2012, Kodak was forced into bankruptcy. Might Kodak have been better off allowing its photographic business to decline while developing applications of its chemical-based capabilities to plastics, industrial coatings pharmaceuticals, and health care?[4]

Typewriter and office equipment makers Olivetti and Smith Corona offer similar cautionary tales. Despite their investments in microelectronics, both failed as suppliers of personal computers. Might Olivetti and Smith Corona have been better advised to deploy their existing electrical and precision engineering know-how in other products?[5] The inability of established firms to adjust to disruptive technological change within their own industries has been examined by Harvard's Clay Christensen.[6]

Resources and Capabilities as Sources of Profit

In Chapter 1, we identified two major sources of superior profitability: industry attractiveness and competitive advantage. Of these, competitive advantage is the more important. As we observed in the previous chapter (Figure 4.1), industry factors account for only a small proportion of interfirm profit differentials. Hence, establishing competitive advantage through the development and deployment of resources and capabilities, rather than seeking shelter from the storm of competition, has become the primary goal of strategy.

The distinction between industry attractiveness and competitive advantage (based on superior resources) as sources of a firm's profitability corresponds to economists' distinction between two types of profit (or *rent*). The profits arising from market power are referred to as *monopoly rents*; those arising from superior resources are *Ricardian rents*, after the 19th century British economist David Ricardo. Ricardo showed that, in a competitive wheat market, when land at the margin of cultivation earned a negligible return, fertile land would yield high returns. Ricardian rent is the return earned by any superior resource or capability whose supply is limited.[7] Most of the $940 million of royalties earned in 2017 by Dolby Laboratories from licensing its sound reduction technologies comprise Ricardian rents, as does most of the $125 million earned by Floyd Mayweather for his fight with Conor McGregor in August 2017.

Distinguishing between profit arising from market power and profit arising from resource superiority is less clear in practice than in principle. A closer look at Porter's five-forces framework suggests that industry attractiveness often derives from the ownership of strategic resources. Barriers to entry, for example, are typically the result of patents, brands, know-how, or distribution channels, learning, or some other resource possessed by incumbent firms. Monopoly is usually based on the ownership of a key resource such as a technical standard or government license.

The resource-based approach has profound implications for companies' strategy formulation. When the primary concern of strategy was industry selection and positioning, companies tended to adopt similar strategies. The resource-based view, by

STRATEGY CAPSULE 5.3

Capability-Based Strategy: Lyor Cohen on Mariah Carey

The year 2001 was disastrous for Mariah Carey. Her first movie, *Glitter*, was a flop, the soundtrack was Carey's worst selling album in years, she was dropped by EMI, and suffered a nervous breakdown.

Lyor Cohen, the workaholic chief executive of Island Def Jam records was quick to spot an opportunity: "I cold-called her on the day of her release from EMI and I said, I think you are an unbelievable artist and you should hold your head up high. What I said stuck on her and she ended up signing with us."

His strategic analysis of Carey's situation was concise: "I said to her, what's your competitive advantage? A great voice, of course. And what else? You write every one of your songs—you're a great writer. So why did you stray from your competitive advantage? If you have this magnificent voice and you write such compelling songs, why are you dressing like that, why are you using all these collaborations [with other artists and other songwriters]? Why? It's like driving a Ferrari in first—you won't see what that Ferrari will do until you get into sixth gear."

Cohen signed Carey in May 2002. Under Universal Music's Island Def Jam Records, Carey returned to her versatile voice, song-writing talents, and ballad style. Her next album, *The Emancipation of Mimi*, was the biggest-selling album of 2005, and in 2006 she won a Grammy award.

Sources: "Rap's Unlikely Mogul," *Financial Times* (August 5, 2002). "A Superstar Returns with Another New Self," *New York Times* (April 12, 2005).

contrast, recognizes that each company possesses a unique collection of resources and capabilities; the key to profitability is not doing the same as other firms but exploiting differences. Establishing competitive advantage involves formulating and implementing a strategy that exploits a firm's unique strengths.

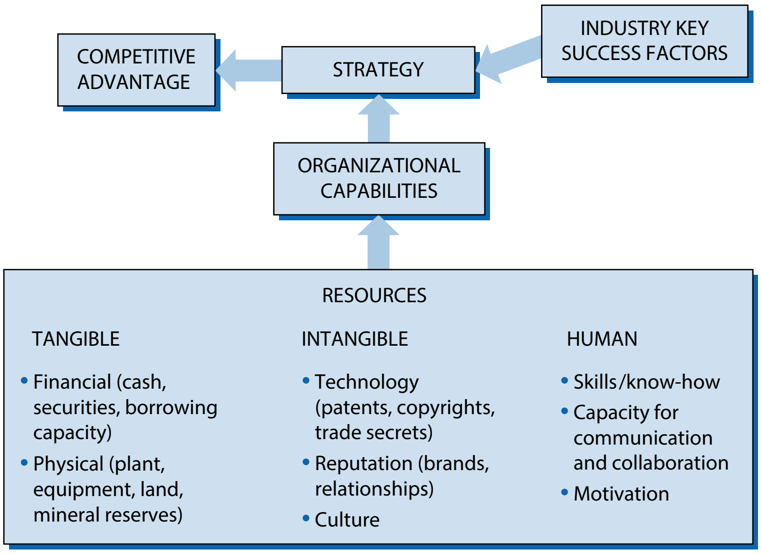
The remainder of this chapter outlines a resource-based approach to strategy formulation. Fundamental to this approach is a thorough and profound understanding of the resources and capabilities of a firm. This enables the firm to adopt a strategy that exploits its resource and capability strengths, while protecting against its weaknesses.

The same principles can be applied to guiding our own careers. A sound career strategy is one that, like David against Goliath, leverages one's strengths while minimizing vulnerability to one's weaknesses—see Strategy Capsule 5.3 for an example. For both individuals and organizations the starting point is to identify the available resources and capabilities.

Identifying Resources and Capabilities

Let us begin by distinguishing between the **resources** and the **capabilities** of the firm. Resources are the productive assets owned by the firm; capabilities are what the firm can do. On their own, individual resources do not confer competitive advantage; they must work together to create organizational capability. Organizational capability, when applied through an appropriate strategy, creates competitive advantage. Figure 5.3 shows the relationships between resources, capabilities, and competitive advantage.

FIGURE 5.3 The links between resources, capabilities, and competitive advantage



Identifying Resources

Drawing up an inventory of a firm's resources can be surprisingly difficult. No such document exists within the accounting or management information systems of most organizations. The balance sheet provides only a partial view of a firm's resources—it comprises mainly financial and physical resources. Our broader view of a firm's resources encompasses three main types of resource: tangible, intangible, and human.

Tangible Resources Tangible resources are the easiest to identify and value: financial resources and physical assets are valued in the firm's balance sheet. Yet, accounting conventions—especially historic cost valuation—typically result in tangible resources being misvalued. The Walt Disney Company's annual accounts for 2016 valued its entire movie library—based on production cost less amortization—at a mere $1.7 billion and its total land assets (including its 28,000 acres in Florida) at a paltry $1.2 billion.[8]

However, the primary goal of resource analysis is not to value a company's tangible resources but to understand their potential for generating profit. This requires not just valuation but information on their composition and characteristics. With that information, we can explore two main routes to create additional value from a firm's tangible resources:

- What opportunities exist for economizing on their use? Can we use fewer resources to support the same level of business or use the existing resources to support a larger volume of business?
- Can existing assets be redeployed more profitably?

Strategy Capsule 5.4 discusses how Michael Eisner's turnaround of Walt Disney during the mid-1980s used both these approaches.

STRATEGY CAPSULE 5.4

Resource Utilization: Revival at Walt Disney

In 1984, Michael Eisner became CEO of the Walt Disney Company. Between 1984 and 1988, Disney's net income increased from $98 million to $570 million, and its stock market valuation from $1.8 billion to $10.3 billion.

The key to the Disney turnaround was the mobilization of Disney's considerable resource base. With the acquisition of Arvida, a real estate development company, Disney's land holdings in Florida were developed into hotels, convention facilities, residential housing, and a new theme park, the Disney-MGM Studio Tour.

To exploit its huge film library, Disney began selling the Disney classics on videocassette and licensing packages of movies to TV networks. To put Disney's underutilized movie studios to work, Eisner doubled the number of movies in production and made Disney a major producer of TV programs.

Supporting the exploitation of these tangible resources was Disney's critically important intangible resource: the enduring affection of millions of people across generations and throughout the world for Disney and its characters. As a result, Disney's new management was able to boost theme park admission charges, launch a chain of Disney Stores to push sales of Disney merchandise, and replicate Disney theme parks in Europe and Asia.

Intangible Resources For most companies, intangible resources are more valuable than tangible resources. Yet, in companies' balance sheets, intangible resources tend to be either undervalued or omitted altogether. The exclusion or undervaluation of intangible resources is a major reason for the large and growing divergence between companies' balance-sheet valuations (or book values) and their stock-market valuations (Table 5.1). Among the most important of these undervalued or unvalued intangible resources are brands. Table 5.2 values the Walt Disney brand at $52 billion; yet in Disney's balance sheet, its trademarks are valued at $1.2 billion.

Trademarks, together with patents, copyrights, and trade secrets, form the intellectual property of the firm. The growing importance of intellectual property as a strategic resource is evident from the legal efforts companies make to protect their patents, copyrights, and trademarks from infringement.

A firm's relationships can also be considered resources. They provide a firm with access to information, know-how, inputs, and a wide range of other resources that lie beyond the firm's boundaries. Being embedded within an interfirm network also conveys legitimacy upon a firm, which can enhance its survival capacity. These interfirm relationships have been referred to as "network resources."[9]

Finally, organizational culture may also be considered an intangible resource. Organizational culture is "an amalgam of shared beliefs, values, assumptions, significant meanings, myths, rituals, and symbols that are held to be distinctive."[10] Although difficult to identify and describe, it is clear that organizational culture is a critically important resource in most firms: it exerts a strong influence on the capabilities an organization develops and the effectiveness with which they are exercised.[11]

Human Resources Human resources comprise the skills and productive effort offered by an organization's employees. Human resources do not appear on the firm's balance sheet—the firm does not own its employees; it purchases their services under

TABLE 5.1 Large companies with the highest market-to-book ratios, September 14, 2017

Company	Nationality	Market capitalization ($ bn.)	Market-to-book ratio
Lockheed Martin Corp.	US	88	40.8
Home Depot, Inc.	US	189	27.8
Netflix, Inc.	US	80	26.0
Amazon.com	US	472	22.8
MasterCard, Inc.	US	152	22.8
AbbVie, Inc.	US	140	22.0
Glaxo Smith Kline	UK	96	14.9
NVIDIA Corp.	US	102	14.5
PepsiCo, Inc.	US	164	13.4
Novo Nordisk A/S	Denmark	95	13.1
Celgene Corp.	US	111	12.8
Naspers Ltd.	S. Africa	100	12.4
Starbucks Inc.	US	77	12.2
Tencent Holdings	China	408	12.0
Accenture plc	UK	88	10.5
3M Company	US	125	10.5
Alibaba	China	449	10.4
Roche	Switzerland	175	9.1
Coca-Cola Co.	US	199	8.9
Altria Inc.	US	120	8.8

Note:
The table shows companies with market capitalizations exceeding $75 billion with the highest ratios of market capitalization to balance-sheet net asset value.
Sources: Merrill Lynch, Financial Times.

employment contacts. However, the stability of employment relationships allows us to consider human resources as part of the resources of the firm. In the United States, the average length of time an employee stays with an employer is 4.2 years, in Europe it is longer—8.6 years in Great Britain, 11.4 in France and 11.0 in Germany; in Japan it is 12.1 years.[12]

Pronouncements that "our people are our greatest asset," are more than a platitude: most companies devote considerable effort to analyzing their human resources—in hiring new employees, appraising their performance, and planning their development. Many organizations have established assessment centers to measure the skills and attributes of employees and prospective employees. *Competency*

TABLE 5.2 The world's 20 most valuable brands, 2017

Rank	Brand	Value, 2017 ($ bn)	Change from 2016
1	Google	246	+7.1
2	Apple	235	+2.7
3	Microsoft	143	+17.6
4	Amazon	139	+40.7
5	Facebook	130	+26.6
6	AT&T	115	+7.2
7	Visa	111	+10.1
8	Tencent	108	+27.5
9	IBM	102	+18.4
10	McDonald's	98	+10.2
11	Verizon	89	−4.2
12	Marlboro	88	+4
13	Coca-Cola	78	−2.7
14	Alibaba	59	+19.9
15	Wells Fargo	58	−0.2
16	UPS	58	+17.0
17	China Mobile	57	+1.1
18	Disney	52	+5.7
19	General Electric	50	−7.2
20	Mastercard	50	+8.2

Note:
Brand values are calculated as the net present value of forecasted future earnings generated by the brand.
Source: BrandZ ranking of the world's top brands, compiled by Kantar Millward Brown, *Financial Times* (June 29, 2017).

modeling involves identifying the set of skills, content knowledge, attitudes, and values associated with superior performers within a particular job category, then assessing each employee against that profile.[13] The finding that psychological and social aptitudes are critical determinants of superior work performance has fueled interest in *emotional* and *social intelligence*[14] Hence the growing trend to "hire for attitude; train for skills."

Identifying Organizational Capabilities

Resources are not productive on their own. A brain surgeon is close to useless without a radiologist, anesthetist, nurses, surgical instruments, imaging equipment, and a host of other resources. To perform a task, resources must work together.

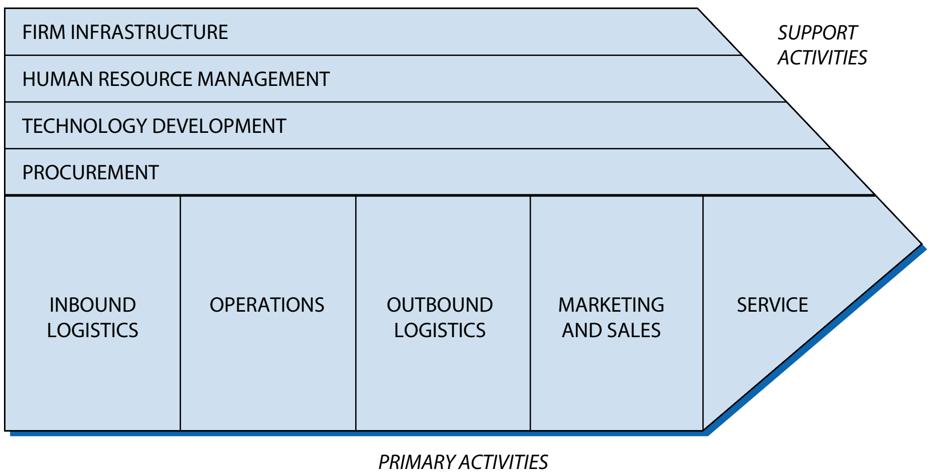
An organizational capability is a "firm's capacity to deploy resources for a desired end result."[15] Just as an individual may be capable of playing the violin, ice-skating, and speaking Mandarin, so an organization may possess the capabilities needed to manufacture widgets, distribute them globally, and hedge the resulting foreign-exchange exposure.

The idea that organizations possess *distinctive competences* is long established,[16] but it was not until Prahalad and Hamel introduced the term *core competences* to describe those capabilities fundamental to a firm's strategy and performance that organizational capability became a central concept in strategy analysis.[17] The resulting flood of literature has created considerable confusion over terminology: I shall use the terms *capability* and *competence* interchangeably.[18]

Classifying Capabilities Before deciding which organizational capabilities are "distinctive" or "core," the firms need to take a systematic survey of its capabilities. For this we need some basis for classifying and disaggregating the firm's activities. Two approaches are commonly used:

- A *functional analysis* identifies organizational capabilities within each of the firm's functional areas: A firm's functions would typically include operations, purchasing, logistics/supply chain management, design, engineering, new product development, marketing, sales and distribution, customer service, finance, human resource management, legal, information systems, government relations, communication and public relations, and HSE (health, safety, and environment).
- A *value chain analysis* identifies a sequential chain of the main activities that the firm undertakes. Michael Porter's generic **value chain** distinguishes between primary activities (those involved with the transformation of inputs and interface with the customer) and support activities (Figure 5.4).[19] Porter's broadly defined value chain activities can be disaggregated to provide a more detailed identification of the firm's activities (and the capabilities that correspond to each activity). Thus, marketing might include market research, test marketing, advertising, promotion, pricing, and dealer relations.

FIGURE 5.4 Porter's value chain



The problem of both approaches is that, despite providing a comprehensive view of an organization's capabilities, they may fail to identify those idiosyncratic capabilities that are truly distinctive and critical to an organization's competitive advantage. We observed earlier that Apple's remarkable ability to create products of unrivaled ease of use and customer appeal results from its combining technical capabilities with design aesthetics and penetrating market insight. This capability is not readily apparent from either a functional or a value chain analysis. To look beyond generic capabilities to uncover those that are unique requires insight and judgment. A careful examination of an organization's history can be revealing. In reviewing an organization's successes and failures over time, do patterns emerge and what do these patterns imply about the capabilities that underlie them?

The Hierarchy of Capabilities Organizational capability involves coordinated behavior among organizational members. This is what distinguishes an organizational capability from an individual skill. Routines and processes play a critical role in integrating individual actions to create organizational capabilities (see Strategy Capsule 5.5). Integration is also important among organizational capabilities. Hence, the capabilities of an organization may be viewed as a hierarchical system in which lower-level capabilities are integrated to form higher-level capabilities. For oil and gas companies, a key requirement for success is the ability to find oil and gas. Figure 5.5 shows that exploration capability comprises a number of component capabilities, which, in turn, can be further disaggregated into even more specialized capabilities.

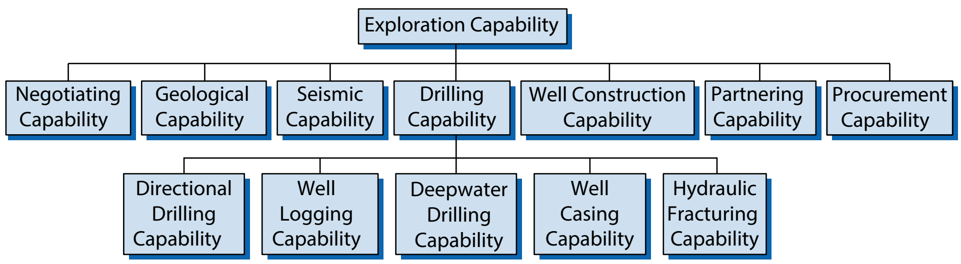
For most companies, it is these higher-level capabilities that constitute the "core competences" described by Prahalad and Hamel. Thus, Toyota's "lean production" capability integrates multiple capabilities that relate to just-in-time scheduling, total quality management, statistical process control, flexible manufacturing, and continuous improvement.

These higher-level capabilities tend to be cross-functional. For example, new product development capability is an upper-level capability that integrates technological development, marketing, design, product engineering, process engineering, and finance.

Some writers have proposed that at the highest level of the capability hierarchy are **dynamic capabilities**—capabilities that allow the modification and adaptation of lower-level operational and functional capabilities.[20] We shall look more closely at dynamic capabilities in Chapter 8.

This notion of an organization's capabilities forming a hierarchy of integration emphasizes their complementarity. For example, Walmart's "everyday low prices" strategy rests upon four mutually reinforcing capabilities: aggressive vendor management, point-of-sale data analysis, superior logistics, and rigorous working capital management.[21]

FIGURE 5.5 Organization capabilities as a hierarchy of integration: The case of oil and gas exploration



STRATEGY CAPSULE 5.5

Routines and Processes: The Foundations of Organizational Capability

Resources are combined to create organizational capabilities; however, an organization's capabilities are not simply an outcome of the resources upon which they are based.

In sport, resource-rich teams are often outplayed by teams that create strong capabilities from modest resources. In European soccer, star-studded teams (e.g., Chelsea, Real Madrid, and Manchester City) are frequently humbled by those built from limited means (e.g., Borussia Dortmund, Porto, and Atletico Madrid). In business too, we see upstarts with modest resources outcompeting established giants: Dyson against Electrolux in domestic appliances, Hyundai against Toyota in automobiles, Dollar Shave Club against Gillette in shaving products, ARM against Intel in microprocessors. Clearly, there is more to organizational capability than just resources.

The academic literature views organizational capability as based upon *organizational routines*: "regular and predictable behavioral patterns [comprising] repetitive patterns of activity"[a] that determine what firms do, who they are, and how they develop. Like individual skills, organizational routines develop through learning by doing—and, if not used, they wither. Hence, there is a trade-off between efficiency and flexibility. A limited repertoire of routines can be performed highly efficiently with near-perfect coordination. The same organization may find it difficult to respond to novel situations.

Organizational capabilities do not simply emerge: they must be created through management action: hence in this book we shall focus on processes rather than routines. Processes are coordinated sequences of actions through which specific productive tasks are performed. Not only is the term *process* well understood by managers, the tools for designing, mapping, and improving business processes are well developed.[b]

However, creating and developing organizational capabilities is not only about putting in place processes. Processes need to be located within appropriately designed organizational units, the individuals involved need to be motivated, and the resources, processes, structures, and management systems need to be aligned with one another.[c] In the next chapter, we shall address in greater detail the challenge that companies face in developing organizational capabilities.

Notes:

[a]R. R. Nelson and S. G. Winter, *An Evolutionary Theory of Economic Change* (Cambridge, MA: Belknap, 1982).

[b]T. W. Malone, K. Crowston, J. Lee, and B. Pentland, "Tools for Inventing Organizations: Toward a Handbook of Organizational Processes," *Management Science* 45 (1999): 425–443.

[c]T. Felin, N. J. Foss, K. H. Heimeriks, and T. L. Madsen, "Microfoundations of Routines and Capabilities: Individuals, Processes, and Structure," *Journal of Management Studies*, 49 (2012): 1351–1374.

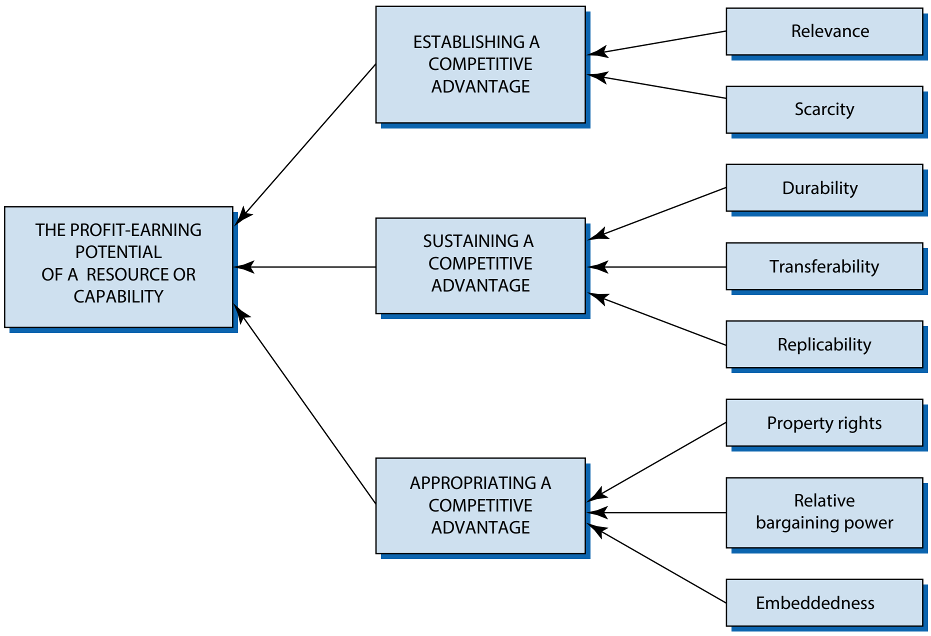
Appraising Resources and Capabilities

Having identified the principle resources and capabilities of an organization, how do we appraise their potential for value creation? There are two fundamental issues: first, the *strategic importance* of the different resources and capabilities of the firm and, second, their *strength* relative to those of competitors'.

Appraising the Strategic Importance of Resources and Capabilities

Strategically important resources and capabilities are those with the potential to generate substantial streams of profit for the firm that owns them. This depends on three factors: their potential to establish a competitive advantage, to sustain that competitive advantage, and to appropriate the returns from the competitive advantage. Each of these is determined by a number of resource characteristics. Figure 5.6 summarizes the key relationships. The criteria I identify for appraising the strategic importance of resources and capabilities are similar to those included in Barney's VRIO framework (see Strategic Capsule 5.6).

FIGURE 5.6 Appraising the strategic importance of resources and capabilities



Establishing Competitive Advantage For a resource or capability to establish a competitive advantage, two conditions must be present:

- *Relevance:* A resource or capability must be relevant to the key success factors in the market—in particular, it must be capable of creating value for customers. British coal mines produced some wonderful brass bands, but these musical capabilities did little to assist the mines in meeting competition from cheap imported coal and North Sea gas. As retail banking shifts toward automated teller machines and online transactions, so retail branches have become a less relevant resource.
- *Scarcity:* If a resource or capability is widely available within the industry, it may be essential but it will not provide a basis for competitive advantage. In oil and gas exploration, technologies such as directional drilling and 3-D seismic analysis are widely available—hence they are "needed to play" but they are not "sufficient to win."

Sustaining Competitive Advantage Once established, competitive advantage tends to erode; three characteristics of resources and capabilities determine the sustainability of the competitive advantage they offer:

STRATEGY CAPSULE 5.6
Appraising Resources and Capabilities: Grant versus Barney

The approach outlined in this chapter for appraising the strategic importance of resources is an alternative to the more widely used VRIO framework developed by Jay Barney. Let me compare the two approaches so that their similarities and differences are apparent.

GRANT: Strategic Importance Framework	BARNEY: VRIO Framework	Comparison
Establishing competitive advantage		
• Relevance	• Valuable	Similar: both are concerned with creating value for customers
• Scarcity	• Rare	Identical: scarcity = rareness
Sustaining competitive advantage		
• Durability	—	No equivalent criterion in VRIO
• Transferability	• Imitable	Similar: imitating a resource or capability requires either buying it (i.e., transferring it) or replicating it
• Replicability		
Appropriating competitive advantage		
• Appropriability	• Organization	Similar: being organized to capture value implies the ability to appropriate value

Sources: The VRIO Framework is found in J. B. Barney, "Looking Inside for Competitive Advantage," *Academy of Management Executive* 9 (1995): 49–61 and J. B. Barney and W. Hesterly, *Strategic Management and Competitive Advantage* 5th edn (Pearson, 2014).

- *Durability:* The more durable a resource, the greater its ability to support a competitive advantage over the long term. For most resources, including capital equipment and proprietary technology, the quickening pace of technological innovation is shortening their life spans. Brands, on the other hand, can be remarkably resilient. Heinz sauces, Kellogg's cereals, Guinness stout, Burberry raincoats, and Coca-Cola have been market leaders for over a century.
- *Transferability:* Competitive advantage is undermined by competitive imitation. If resources and capabilities are transferable between firms—that is, if they can be bought and sold—then any competitive advantage that is based upon them will be eroded. Most resources—including most human resources—are easily acquired. Other resources and most capabilities are not easily transferred. Some resources are immobile. A competitive advantage of the Laphroaig distillery and its 10-year-old, single malt whiskey is its spring on the Isle of Islay, which supplies water flavored by peat and sea spray. Capabilities, because they combine multiple resources and are embedded in processes, are also difficult to move from one firm to another. Another

STRATEGY CAPSULE 5.7

Appropriating Returns from Superior Capabilities: Employees versus Owners

Investment banking provides a fascinating arena to observe the struggle between employees and owners to appropriate the returns to organizational capability. Goldman Sachs possesses outstanding capabilities in merger and acquisition services, underwriting and proprietary trading. These capabilities combine employee skills, IT infrastructure, corporate reputation, and the company's systems and culture. All but the first of these are owned by the company. However, the division of returns between employees and owners suggests that employees have the upper hand in appropriating rents. In 2016, total employee compensation was $11.7 billion—an average of $338,576 per employee; net after-tax profit was $7.1 billion out of which shareholders received $1.1 billion in dividends.

A similar situation exists in professional sport: star players are able to exploit the full value of their contribution to their teams' performance. The $38.4 million salary the Los Angeles Lakers will pay LeBron James for the 2018/19 NBA season seems likely to fully exploit his value to the Lakers.

So too CEOs: Expedia's CEO, Dara Khosrowshahi, was paid $94.6 million in 2014—an exceptional level of pay when compared to Expedia's net profit of $425 million or to the average pay of Expedia's 16,291 other US employees.

The more organizational performance can be identified with the expertise of an individual employee, the more mobile is that employee, and the more likely that the employee's skills can be deployed with another firm, then the stronger is the bargaining position of that employee.

Hence, the emphasis that many investment banks, advertising agencies, and other professional service firms give to team-based rather than individual skills. "We believe our strength lies in… our unique team-based approach," declares audit firm Grant Thornton. However, employees can reassert their bargaining power through emphasizing team mobility: in August 2018, a team of European equity analysts moved from Societe Generale to Barclays plc.

barrier to transferability is limited information regarding resource quality. Sellers of resources are better informed about the performance characteristics of resources than buyers—this is certainly true of human resources. This creates a problem of *adverse selection* for buyers.[22] Finally, resources are complementary: they are less productive when detached from their original home. Hence, when Chinese companies acquire European brands—Aquascutum by YGM, Cerruti by Trinity Ltd., MG (the British sports car marque) by SAIC, and Ferretti by Weichai Group—there is a risk that brand equity is eroded.

- *Replicability:* If a firm cannot buy a resource or capability, it must build it. Technologies that are not protected by patents can be imitated easily by competitors. Capabilities based on complex networks of interacting organizational routines are less easy to copy. Federal Express's national, next-day delivery service and Singapore Airlines' superior inflight services are complex capabilities based on carefully-honed processes, well-developed HR practices, and unique corporate cultures. Even when resources and capabilities can be copied, imitators are typically at a disadvantage to initiators.[23]
- *Appropriating the returns to competitive advantage:* Who gains the returns generated by superior resources and capabilities? Typically the owner of that

resource or capability. But ownership may not be clear-cut. Are organizational capabilities owned by the employees who provide skills and effort or by the firm which provides the processes and culture? In human-capital-intensive firms, there is an ongoing struggle between employees and shareholders as to the division of the rents arising from superior capabilities. As Strategy Capsule 5.7 describes, bargaining between star employees and owners over the sharing of spoils is a characteristic feature of both investment banking and professional sports. This struggle is reminiscent of Karl Marx's description of the conflict between labor and capital to capture surplus value. The prevalence of partnerships (rather than shareholder-owned companies) in law, accounting, and consulting firms is one solution to the battle for rent appropriation: the star workers are the owners.

Appraising the Relative Strength of a Firm's Resources and Capabilities

Having established which resources and capabilities are strategically most important, we need to assess how a firm measures up relative to its competitors. Appraising a company's resources and capabilities relative to those of its competitors' is difficult. Organizations frequently fall victim to past glories, hopes for the future, and their own wishful thinking. Executives within the same company often have quite different perceptions of their own company's strengths and weaknesses.[24] Executives may also mistake luck for capability, creating overconfidence in their company's capabilities.[25] Royal Bank of Scotland's successful acquisition of NatWest Bank was followed by an acquisition binge culminating in the disastrous takeover of ABN Amro in 2007.[26]

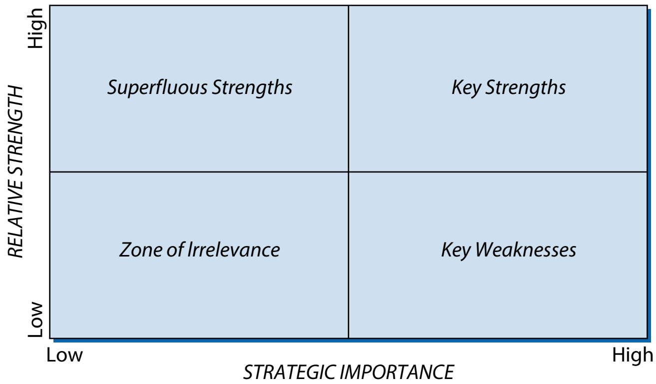
Benchmarking—the process of comparing one's processes and performance to those of other companies—offers an objective and quantitative way for a firm to assess its resources and capabilities relative to its competitors.[27] The results can be salutary: Xerox Corporation's pioneering use of benchmarking during the 1980s revealed the massive superiority of its Japanese competitors in cost, quality, and new product development, providing the impetus for company-wide transformation.[28] The case for benchmarking has been reinforced by recent evidence showing that the substantial productivity differences between firms within the same industry are primarily the result of differences in management practices.[29]

Benchmarking is most useful for assessing functional capabilities. To assess idiosyncratic capabilities—Johnson & Johnson's ability to infuse ethics into its business practices; Lego's ability to inspire children across countries, cultures and generations; Nokia's capacity for corporate reincarnation—benchmarking needs to be supplemented by more reflective approaches to recognizing strengths and weaknesses. As I discussed earlier ("Identifying Organizational Capabilities"), in-depth probing of a company' history and traits can be highly instructive.

Developing Strategy Implications

Our analysis so far—identifying resources and capabilities and appraising them in terms of strategic importance and relative strength—can be summarized diagrammatically (Figure 5.7).

FIGURE 5.7 The framework for appraising resources and capabilities



Our focus is the two right-hand quadrants of Figure 5.7. How do we exploit our key strengths most effectively? How can we address our key weaknesses in terms of both reducing our vulnerability to them and correcting them? Finally, what about our "superfluous strengths": are these really inconsequential or are there ways in which we can deploy them to greater effect? Let me offer a few suggestions.

Exploiting Key Strengths

The foremost task is to ensure that the firm's critical strengths are deployed to the greatest effect:

- If some of Walt Disney's key strengths are the Disney brand, the worldwide affection that children and their parents have for Disney characters, and the company's capabilities in the design and operation of theme parks, the implication is that Disney should not limit its theme park activities to six locations (Anaheim, Orlando, Paris, Tokyo, Hong Kong, and Shanghai); it should open theme parks in other locations which have the market potential for year-round attendance.
- If a core competence of quality newspapers such as the *New York Times*, the *Guardian* (United Kingdom), and *Le Monde* (France) is their ability to interpret events and identify emerging trends, can this capability be used as a basis for creating new revenue sources such as specialized business and financial intelligence, individually customized news feeds, and political consulting services?
- If a company has few key strengths, this may suggest adopting a niche strategy. Harley-Davidson's key strength is its brand identity; its strategy has been to focus upon traditionally styled, technologically backward, cruiser motorcycles. British semiconductor company ARM is a technology leader in RISC architecture; its strategy is highly focused: it licenses its microprocessor designs for mobile devices worldwide.[30]

Managing Key Weaknesses

What does a company do about its key weaknesses? It is tempting to counter weaknesses with plans to upgrade existing resources and capabilities. However, converting weakness into strength is likely to be a long-term task for most companies. In the short to medium term, a company is likely to be stuck with the resources and capabilities that it has inherited.

The most decisive, and often most successful, solution to weaknesses in key functions is to *outsource*. Companies have become increasingly selective in the activities they perform internally: concentrating on their key strengths and outsourcing other activities. Across a range of activities specialist suppliers have developed high-level capabilities in contact manufacture (Hon Hai Precision/Foxconn, Flextronics), IT (Accenture, IBM, Capgemini), logistics (Exel, Kuehne + Nagel, UPS), and food service (Compass, Sodexo).

Some companies may be present in relatively few activities within their value chains. In athletic shoes and clothing, Nike undertakes product design, marketing, and overall "systems integration," but most other functions are contracted out. We shall consider the vertical scope of the firm in greater depth in Chapter 11.

Clever strategy formulation can allow a firm to negate its vulnerability to key weaknesses. Harley-Davidson cannot compete with Honda, Yamaha, and BMW on technology. The solution? It has made a virtue out of its outmoded technology and traditional designs. Harley-Davidson's old-fashioned, push-rod engines, and recycled designs have become central to its retro-look authenticity.

What about Superfluous Strengths?

What about those resources and capabilities where a company has particular strengths that don't appear to be important sources of sustainable competitive advantage? One response may be selective divestment. If a retail bank has a strong but increasingly underutilized branch network, it may be time to prune its real-estate assets and invest in web-based customer services.

However, in the same way that companies can turn apparent weaknesses into competitive strengths, so it is possible to develop innovative strategies that turn apparently inconsequential strengths into key strategy differentiators. Edward Jones' network of brokerage offices and 8000-strong sales force looked increasingly irrelevant in an era when brokerage transactions were going online. However, by emphasizing personal service, trustworthiness, and its traditional, conservative investment virtues, Edward Jones has built a successful contrarian strategy based on its network of local offices.[31]

In the fiercely competitive MBA market, business schools can also differentiate on the basis of idiosyncratic resources and capabilities. Georgetown's Jesuit heritage is not an obvious source of competitive advantage for its MBA programs. Yet, the Jesuit emphasis on developing the whole person and cultivating ethics, integrity, and emotional intelligence provide a strong foundation for developing successful business leaders. Similarly, Dartmouth College's location in the woods of New Hampshire far from any major business center is not an obvious benefit to its business programs. However, Dartmouth's Tuck Business School has used the isolation and natural beauty of its locale to create close-knit MBA classes that then join a loyal and supportive alumni network.

The Industry Context of Resource Analysis

The results of our resource and capability appraisal depend critically upon how broadly or narrowly we define the industry within which the firm is located. If we are appraising the resources and capabilities of Harley-Davidson, should we view Harley as located in the motorcycle industry or in the heavyweight motorcycle segment? Clearly, our appraisal of both the strategic importance of resources and Harley's relative strength will differ substantially. Initially at least, it is best to define industries fairly broadly; otherwise, there is a risk our analysis will be constrained by the focal firm's existing strategic positioning, Thus, in the case of Harley-Davidson, it is useful to view the company within the context of the motorcycle industry as a whole. That way we can address the question of which segments Harley should be located within. We can then go on to a more focused analysis of Harley's resources and capabilities for the different industry segments.

As with all strategy frameworks, we need to be alert to the limitations of resource and capability analysis. Not only are our criteria of strategic importance and relative strength context-dependent but also individual resources and capabilities are themselves

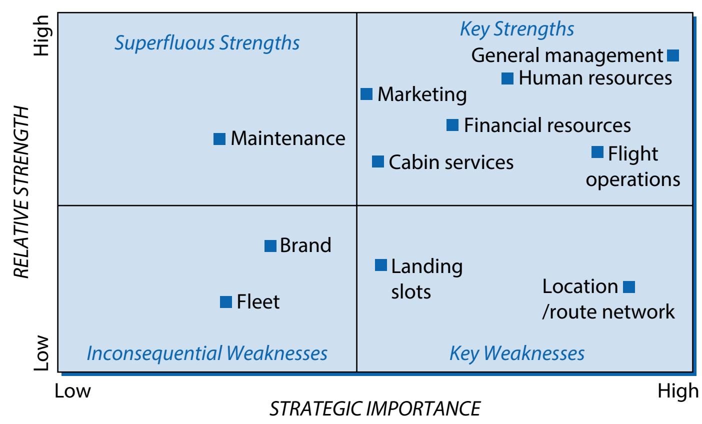
STRATEGY CAPSULE 5.8

Resource and Capability Analysis in Action: Icelandair Group

If the key success factor in the airline business is providing safe, reliable transportation between city pairs at a competitive price, we can begin by identifying the resources and capabilities needed to achieve that goal. We can then use the value chain to fill out more systematically this list of resources and capabilities. Table 5.3 and Figure 5.8 show the major resources and capabilities required in the airline business and assess Icelandair's position relative to a peer group of competitors.

In terms of strategy implications, a key resource that distinguishes Icelandair is location: Iceland's population of 326,000 offers a passenger and freight market that Icelandair can easily dominate, but is too small to support an international airline. Hence, to achieve efficient scale, Icelandair must (a) collaborate with other firms and the Icelandic government to develop Iceland as a tourist destination and (b) compete on North Atlantic routes between European and North American cities. For (b) to be viable, Icelandair needs to make routes that involve a stopover at its Reykjavik hub competitive with the point-to-point routes offered by the major US and European airlines. This requires (a) using Icelandair's operational efficiency to undercut other airlines on price and (b) exploiting Icelandair's operational and customer service capabilities, its human resource strengths, and the appeal of Reykjavik/Iceland as a stopover to establish a differentiation advantage. Icelandair's strategy is encapsulated in its vision statement: "To unlock Iceland's potential as a year-round destination, to strengthen Iceland's position as a connecting hub, and to maintain our focus on flexibility and experience."

FIGURE 5.8 Icelandair's resource and capability profile



multidimensional aggregations. For example, a firm's manufacturing capability might be assessed in relation to efficiency, quality, and flexibility. Hence, the resource and capability analysis as outlined in this chapter is likely to be a fairly crude tool for appraising a firm's potential for competitive advantage. However, what it does offer is a systematic approach to describe and assess an organization's portfolio of resources and capabilities that can be subsequently refined.

Strategy Capsule 5.8 illustrates how the approach outlined in this chapter can be applied to identify and appraise the resources and capabilities of the Icelandair Group and indicate its potential to establish a competitive advantage within the airline industry.

TABLE 5.3 The resources and capabilities of Icelandair Group[a]

	Strategic importance [1–10]	Icelandair's relative strength [1–10][b]
Resources		
Fleet	Planes are transferrable; main differentiator is age of fleet **[2]**	Above-average age of fleet until new planes are delivered in 2018–21 **[2]**
Financial resources	Critical for (a) buying other resources (b) surviving downturns **[7]**	Strong balance sheet; positive cash flow **[8]**
Location and route network	Critical to market access and exploiting network economies **[9]**	Tiny domestic market and inferior North Atlantic routes **[3]**
Landing slots	Key determinant of access to congested airports **[6]**	Limited presence at the key capacity-constrained airports of Europe and North America **[3]**
Brand	Important indicator of quality and reliability **[5]**	Lacks international prominence and still tainted by former image as a "hippy airline" **[4]**
Human resources	Human resources critical to most capabilities **[8]**	Well-educated, well-trained, and well-motivated employees **[8]**
Capabilities		
Flight operations	Operational capabilities are critical to cost efficiency and user satisfaction **[9]**	Strong record of operational efficiency, safety, and flexibility; cost per average seat mile below that of US and European legacy carriers **[8]**
Cabin services	Critically important in business class; less important in economy class **[6]**	Customer reviews suggest parity in business class and superior quality/price combination in economy **[6]**
Maintenance	Relevant to reliability and safety, but easily outsourced **[3]**	Safety record and reliability performance suggest superior capability **[7]**
Marketing	Important for building brand awareness and stimulating demand **[5]**	A key element in Icelandair's success in expanding tourist traffic and market share of North Atlantic market **[8]**
General management	Essential for developing and maintaining operational, customer service, marketing, and support capabilities **[8]**	Icelandair has a dynamic, hands-on senior management team that supports a flexible and committed approach to management **[9]**

Notes:
[a]This exercise is for illustrative purposes only. The assessments provided are based upon the author's perceptions, not upon objective measurement.
[b]Compared to peer group, comprising Norwegian, SAS, Lufthansa, British Airways, American, EasyJet, and WOW Air.

Summary

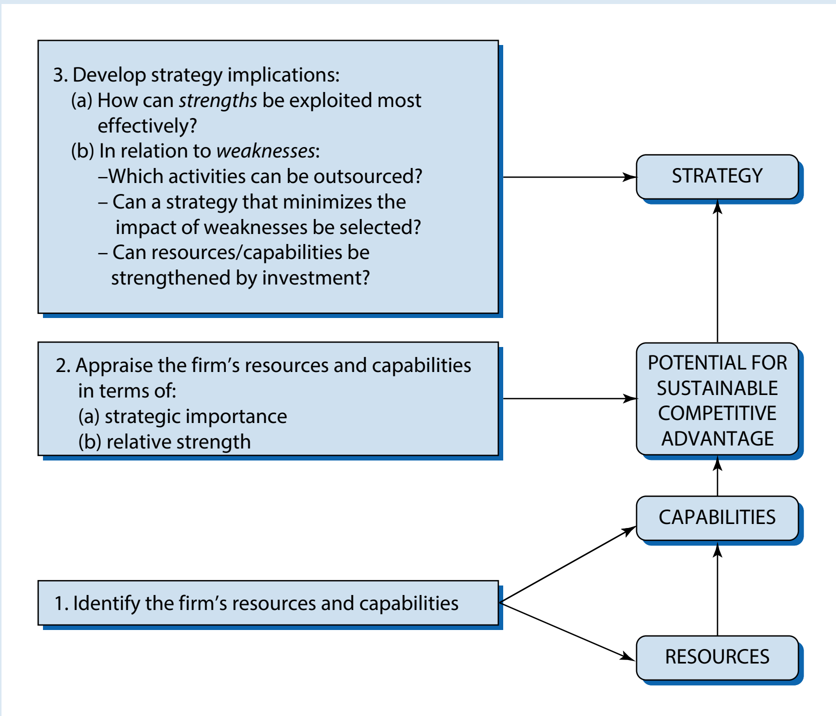
We have shifted the focus of our attention from the external environment of the firm to its internal environment. We have observed that internal resources and capabilities offer a sound basis for building strategy. Indeed, when a firm's external environment is in a state of flux, internal strengths are likely to provide the primary basis upon which it can define its identity and its strategy.

In this chapter, we have followed a systematic approach to identifying the resources and capabilities that an organization has access to; we then have appraised these resources and capabilities in terms of their potential to offer a sustainable competitive advantage and, ultimately, to generate profit.

Having built a picture of an organization's key resources and capabilities and having identified areas of strength and weakness, we can then devise strategies through which the organization can exploit its strengths and minimize its vulnerability to its weaknesses. Figure 5.9 summarizes the main stages of our analysis.

In the course of the chapter, we have encountered a number of theoretical concepts and relationships; however, the basic issues of resource and capability analysis are intensely practical. At its core, resource and capability analysis asks what is distinctive about a firm in terms of what it can do better than its competitors and what it cannot. This involves not only analysis of balance sheets, employee competencies, and benchmarking data, but also insight into the values, ambitions, and traditions of a company that shape its priorities and identity.

FIGURE 5.9 Summary: A framework for analyzing resources and capabilities



Because the resources and capabilities of the firm form the foundation for building competitive advantage, we shall return again and again to the concepts of this chapter. In the next chapter, we shall consider the organizational structure and management systems through which resources and capabilities are deployed. In Chapter 7, we shall look more closely at the competitive advantages that arise when resource and capability strengths intersect with key success factors. In Chapter 8, we shall consider how companies build the capabilities needed to deal with the challenges of the future.

Self-Study Questions

1. Since it was founded in 1994, Amazon has expanded its business from online book sales, to online general retailing, to audio and video streaming, to e-readers and tablet computers, to cloud computing. Is Amazon's strategy based primarily upon serving a market need or primarily on exploiting its resources and capabilities?
2. The world's leading typewriter manufacturers in the 1970s included Olivetti, Underwood, IBM, Olympia, Remington, Smith Corona, and Brother Industries. While IBM and Brother adapted to the microelectronics revolution, most of the others failed. What strategies might these companies have pursued as an alternative to producing personal computers and electronic word processors market?
3. I have argued that the part of discrepancy between firms' stock market value and their book value reflects the fact that intangible resources are typically undervalued or not valued at all in their balance sheets. For the companies listed in Table 5.1, which types of resource are likely to be absent or undervalued in the firms' balance sheets?
4. Many companies announce in their corporate communications: "Our people are our greatest resource." In terms of the criteria listed in Figure 5.7, can employees be considered of the utmost strategic importance? For Walmart, McDonald's, and McKinsey & Company, how important are employees to their competitive advantages?
5. The chapter argues that Apple's key capabilities are product design and product development that combine hardware technology, software engineering, aesthetics, ergonomics, and cognitive awareness to create products with a superior user interface and unrivalled market appeal. How easy would it be for Samsung to replicate these capabilities of Apple?
6. Given the profile of Icelandair's resources and capabilities outlined in Strategic Capsule 5.8, how might Icelandair best exploit its resources and capabilities to (a) expand passenger numbers traveling to and from Iceland and (b) profitably grow its share of the North Atlantic market?
7. Apply resource and capability analysis to your own business school. Begin by identifying the resources and capabilities relevant to success in the market for business education, appraise the resources and capabilities of your school, and then make strategy recommendations regarding such matters as the programs to be offered and the overall positioning and differentiation of the school and its offerings.

Notes

1. P. F. Drucker, *Managing in Turbulent Times* (New York: Harper & Row, 1990).
2. The resource-based view is described in J. B. Barney, "Firm Resources and Sustained Competitive Advantage," *Journal of Management* 17 (1991): 99–120; and R. M. Grant, "The Resource-based Theory of Competitive Advantage," *California Management Review* 33 (1991): 114–135.
3. C. K. Prahalad and G. Hamel, "The Core Competence of the Corporation," *Harvard Business Review* (May/June 1990): 79–91.
4. "Eastman Kodak: Failing to Meet the Digital Challenge," in R. M. Grant, *Cases to Accompany Contemporary Strategy Analysis* 10th edn (Oxford: Blackwell, 2019).
5. E. Danneels, "Trying to Become a Different Type of Company: Dynamic Capability at Smith Corona," *Strategic Management Journal* 32 (2011): 1–31; and E. Danneels, B. Provera, and G. Verona, "(De-)Institutionalizing Organizational Competence: Olivetti's Transition from Mechanical to Electronic Technology," Bocconi University, Milan, 2012.
6. C. M. Christensen, *The Innovator's Dilemma* (New York: Harper Business, 2000).
7. A. Madhok, S. Li, and R. L. Priem, "The Resource-Based View Revisited: Comparative Firm Advantage, Willingness-Based Isolating Mechanisms and Competitive Heterogeneity," *European Management Review* 7 (2010): 91–100.
8. Walt Disney Company, 10-K report, 2014.
9. R. Gulati, "Network Location and Learning: The Influence of Network Resources and Firm Capabilities on Alliance Formation," *Strategic Management Journal* 20 (1999): 397–420.
10. S. Green, "Understanding Corporate Culture and Its Relationship to Strategy," *International Studies of Management and Organization* 18 (Summer 1988): 6–28.
11. J. Barney, "Organizational Culture: Can It Be a Source of Sustained Competitive Advantage?" *Academy of Management Review* 11 1986): 656–665.
12. http://stats.oecd.org/Index.aspx?DatasetCode=TENURE_AVE. Accessed September 13, 2017.
13. E. Lawler, "From Job-Based to Competency-Based Organizations," *Journal of Organizational Behavior* 15 (1994): 3–15; L. Spencer and S. Spencer, *Competence at Work: Models for Superior Performance* (New York: John Wiley & Sons, Inc., 1993).
14. D. Goleman, *Emotional Intelligence* (New York: Bantam, 1995); D. Goleman, *Social Intelligence* (New York: Bantam, 2006).
15. C. E. Helfat and M. Lieberman, "The Birth of Capabilities: Market Entry and the Importance of Prehistory," *Industrial and Corporate Change* 12 (2002): 725–760.
16. P. Selznick, *Leadership in Administration: A Sociological Interpretation* (New York: Harper & Row, 1957).
17. C. K. Prahalad and G. Hamel, "The Core Competence of the Corporation," *Harvard Business Review* (May/June 1990): 79–91.
18. G. Hamel and C. K. Prahalad state: "the distinction between competencies and capabilities is purely semantic" (letter, *Harvard Business Review*, May/June 1992: 164–165).
19. M. E. Porter, *Competitive Advantage* (New York: Free Press, 1984).
20. D. J. Teece, G. Pisano, and A. Shuen, "Dynamic Capabilities and Strategic Management," *Strategic Management Journal* 18 (1997): 509–533.
21. P. Leinwand and C. Mainardi, "The Coherence Premium," *Harvard Business Review* 88 (June 2010): 86–92.
22. *Adverse selection* refers to the propensity for a market to be dominated by low-quality or risky offerings as a result of information asymmetry. This is also known as the *lemons problem*. See G. Akerlof, "The Market for Lemons: Qualitative Uncertainty and the Market Mechanism," *Quarterly Journal of Economics* 84 (1970): 488–500.
23. I. Dierickx and K. Cool ("Asset Stock Accumulation and Sustainability of Competitive Advantage," *Management Science* 35 (1989): 1504–1513) point to two major disadvantages of imitation (a) *asset mass efficiencies*: the incumbent's strong initial resource position facilitates the subsequent accumulation of resources and (b) *time compression diseconomies*: additional costs incurred by an imitator when seeking to rapidly accumulate a resource or capability.
24. J. Denrell, N. Arvidsson, and U. Zander, "Managing Knowledge in the Dark: An Empirical Study of the Reliability of Capability Evaluations," *Management Science* 50 (2004): 1491–1503.
25. D. Miller, *The Icarus Paradox: How Exceptional Companies Bring about Their Own Downfall* (New York: HarperBusiness, 1990).
26. I. Martin, *Making It Happen: Fred Goodwin, RBS and the Men Who Blew Up the British Economy* (London: Simon & Schuster, 2013).
27. "What is Benchmarking?" *Benchnet: The Benchmarking Exchange*, www.benchnet.com, accessed September 18, 2017.
28. G. Jacobson and J. Hillkirk, *Xerox: American Samurai* (New York: Macmillan, 1986).
29. N. Bloom, J. Van Reenen, and E. Brynjolfsson, "Good Management Predicts a Firm's Success Better Than IT, R&D, or Even Employee Skills," *Harvard Business Review* (April 2017); N. Bloom and J. Van Reenen, "Why Do Management Practices Differ across Firms and Countries?" *Journal of Economic Perspectives* 24 (2010): 203–224.
30. S. Ferriani, E. Garnsey, G. Lorenzoni, and L. Massa, "The Intellectual Property Business Model: Lessons from ARM Plc." (CTM Working Paper, University of Cambridge, June 2015).
31. C. Markides, *All the Right Moves* (Boston: Harvard Business School Press, 1999).