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The Resource-Based Theory of Competitive Advantage: Implications for Strategy Formulation

Robert M. Grant

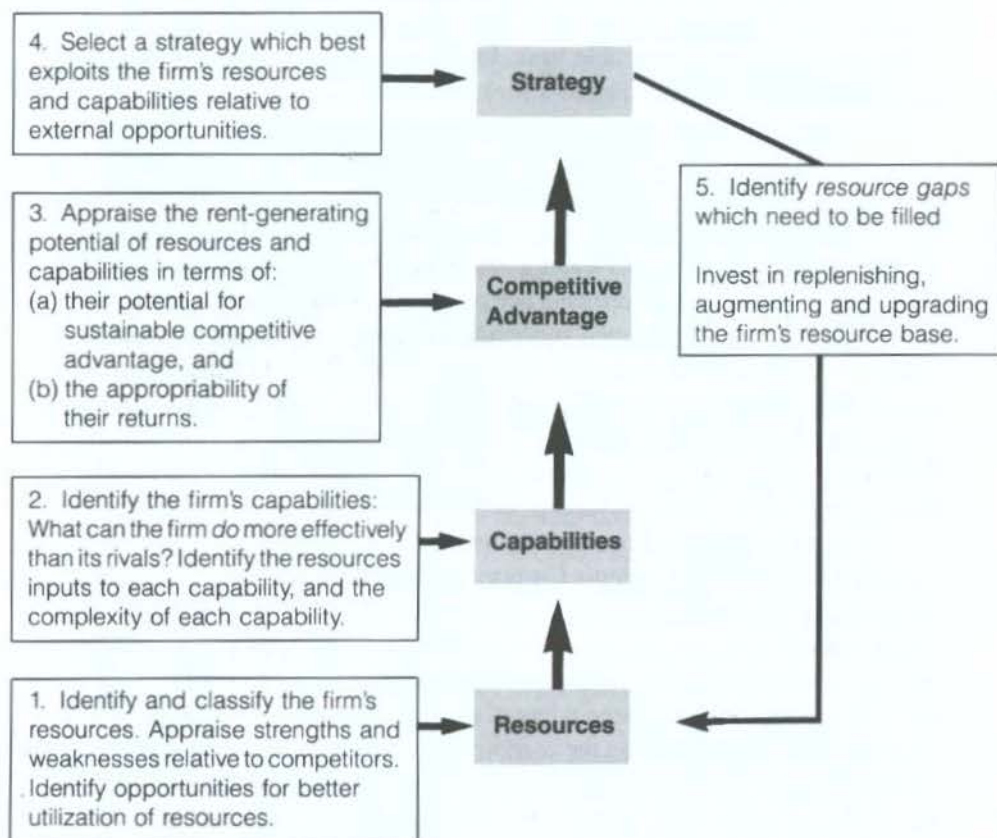
Strategy has been defined as *"the match an organization makes between its internal resources and skills . . . and the opportunities and risks created by its external environment."*¹ During the 1980s, the principal developments in strategy analysis focussed upon the link between strategy and the external environment. Prominent examples of this focus are Michael Porter's analysis of industry structure and competitive positioning and the empirical studies undertaken by the PIMS project.² By contrast, the link between strategy and the firm's resources and skills has suffered comparative neglect. Most research into the strategic implications of the firm's internal environment has been concerned with issues of strategy implementation and analysis of the organizational processes through which strategies emerge.³

Recently there has been a resurgence of interest in the role of the firm's resources as the foundation for firm strategy. This interest reflects dissatisfaction with the static, equilibrium framework of industrial organization economics that has dominated much contemporary thinking about business strategy and has renewed interest in older theories of profit and competition associated with the writings of David Ricardo, Joseph Schumpeter, and Edith Penrose.⁴ Advances have occurred on several fronts. At the corporate strategy level, theoretical interest in economies of scope and transaction costs have focussed attention on the role of corporate resources in determining the industrial and geographical boundaries of the firm's activities.⁵ At the business strategy level, explorations of the relationships between resources, competition, and profitability include the analysis of competitive imitation,⁶ the appropriability of returns to innovations,⁷ the role of imperfect information in creating profitability differences between competing

firms,⁸ and the means by which the process of resource accumulation can sustain competitive advantage.⁹

Together, these contributions amount to what has been termed "the resource-based view of the firm." As yet, however, the implications of this "resource-based theory" for strategic management are unclear for two reasons. First, the various contributions lack a single integrating framework. Second, little effort has been made to develop the practical implications of this theory. The purpose of this article is to make progress on both these fronts by proposing a framework for a resource-based approach to strategy formulation which integrates a number of the key themes arising from this stream of literature. The organizing framework for the article is a five-stage procedure for strategy formulation: analyzing the firm's resource-base; appraising the firm's capabilities; analyzing the profit-earning potential of firm's resources and capabilities; selecting a strategy; and extending and upgrading the firm's pool of resources and capabilities. Figure 1 outlines this framework.

**Figure 1. A Resource-Based Approach to Strategy Analysis:
A Practical Framework**



Resources and Capabilities as the Foundation for Strategy

The case for making the resources and capabilities of the firm the foundation for its long-term strategy rests upon two premises: first, internal resources and capabilities provide the basic direction for a firm's strategy, second, resources and capabilities are the primary source of profit for the firm.

Resources and Capabilities as a Source of Direction—The starting point for the formulation of strategy must be some statement of the firm's identity and purpose—conventionally this takes the form of a mission statement which answers the question: "What is our business?" Typically the definition of the business is in terms of the served market of the firm: e.g., "Who are our customers?" and "Which of their needs are we seeking to serve?" But in a world where customer preferences are volatile, the identity of customers is changing, and the technologies for serving customer requirements are continually evolving, an externally focused orientation does not provide a secure foundation for formulating long-term strategy. When the external environment is in a state of flux, the firm's own resources and capabilities may be a much more stable basis on which to define its identity. Hence, a definition of a business in terms of what it is capable of doing may offer a more durable basis for strategy than a definition based upon the needs which the business seeks to satisfy.

Theodore Levitt's solution to the problem of external change was that companies should define their served markets broadly rather than narrowly: railroads should have perceived themselves to be in the transportation business, not the railroad business. But such broadening of the target market is of little value if the company cannot easily develop the capabilities required for serving customer requirements across a wide front. Was it feasible for the railroads to have developed successful trucking, airline, and car rental businesses? Perhaps the resources and capabilities of the railroad companies were better suited to real estate development, or the building and managing of oil and gas pipelines. Evidence suggests that serving broadly defined customer needs is a difficult task. The attempts by Merrill Lynch, American Express, Sears, Citicorp, and, most recently, Prudential-Bache to "serve the full range of our customers' financial needs" created serious management problems. Allegis Corporation's goal of "serving the needs of the traveller" through combining United Airlines, Hertz car rental, and Westin Hotels was a costly failure. By contrast, several companies whose strategies have been based upon developing and exploiting clearly defined internal capabilities have been adept at adjusting to and exploiting external change. Honda's focus upon the technical excellence of 4-cycle engines carried it successfully from motorcycles to automobiles to a broad range of gasoline-engine products. 3M Corporation's expertise in applying adhesive

and coating technologies to new product development has permitted profitable growth over an ever-widening product range.

Resources as the Basis for Corporate Profitability—A firm's ability to earn a rate of profit in excess of its cost of capital depends upon two factors: the attractiveness of the industry in which it is located, and its establishment of competitive advantage over rivals. Industrial organization economics emphasizes industry attractiveness as the primary basis for superior profitability, the implication being that strategic management is concerned primarily with seeking favorable industry environments, locating attractive segments and strategic groups within industries, and moderating competitive pressures by influencing industry structure and competitors' behavior. Yet empirical investigation has failed to support the link between industry structure and profitability. Most studies show that differences in profitability within industries are much more important than differences between industries.¹⁰ The reasons are not difficult to find: international competition, technological change, and diversification by firms across industry boundaries have meant that industries which were once cozy havens for making easy profits are now subject to vigorous competition.

The finding that competitive advantage rather than external environments is the primary source of inter-firm profit differentials between firms focuses attention upon the sources of competitive advantage. Although the competitive strategy literature has tended to emphasize issues of strategic positioning in terms of the choice between cost and differentiation advantage, and between broad and narrow market scope, fundamental to these choices is the resource position of the firm. For example, the ability to establish a cost advantage requires possession of scale-efficient plants, superior process technology, ownership of low-cost sources of raw materials, or access to low-wage labor. Similarly, differentiation advantage is conferred by brand reputation, proprietary technology, or an extensive sales and service network.

This may be summed up as follows: business strategy should be viewed less as a quest for monopoly rents (the returns to market power) and more as a quest for Ricardian rents (the returns to the resources which confer competitive advantage over and above the real costs of these resources). Once these resources depreciate, become obsolescent, or are replicated by other firms, so the rents they generate tend to disappear.¹¹

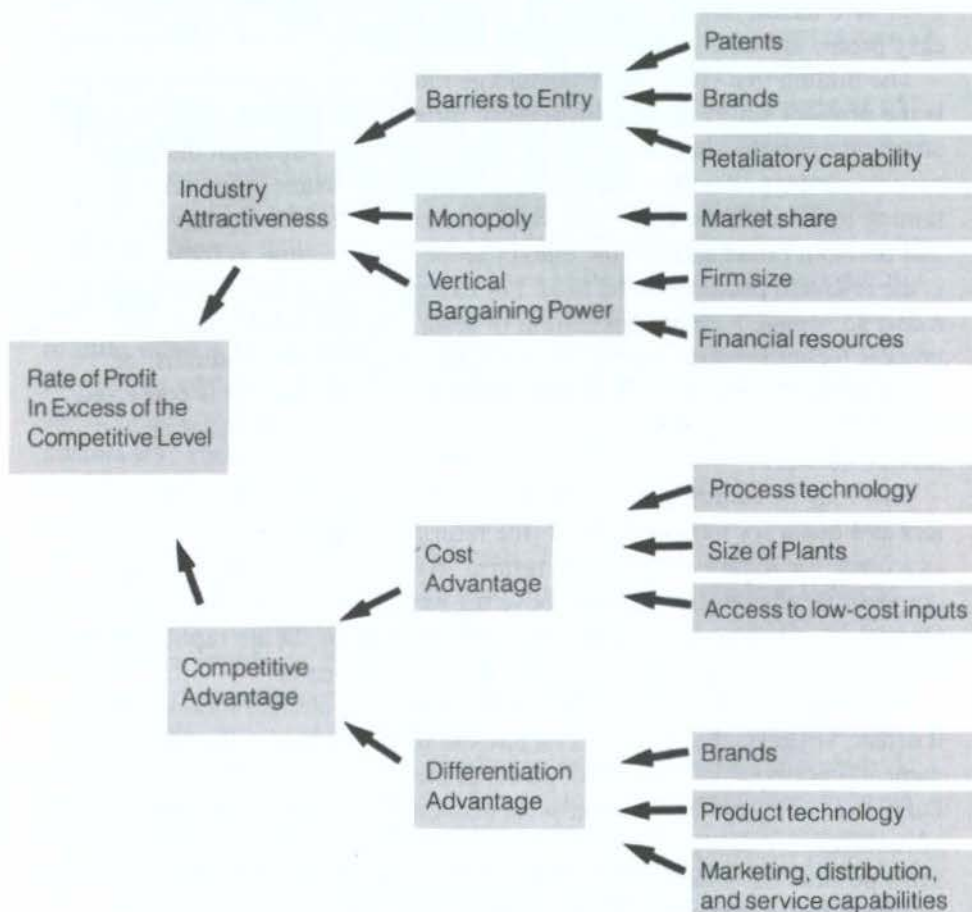
We can go further. A closer look at market power and the monopoly rent it offers, suggests that it too has its basis in the resources of firms. The fundamental prerequisite for market power is the presence of barriers to entry.¹² Barriers to entry are based upon scale economies, patents, experience advantages, brand reputation, or some other resource which incumbent firms possess but which entrants can acquire only slowly or at disproportionate expense. Other structural sources of market power are similarly

based upon firms' resources: monopolistic price-setting power depends upon market share which is a consequence of cost efficiency, financial strength, or some other resource. The resources which confer market power may be owned individually by firms, others may be owned jointly. An industry standard (which raises costs of entry), or a cartel, is a resource which is owned collectively by the industry members.¹³ Figure 2 summarizes the relationships between resources and profitability.

Taking Stock of the Firm's Resources

There is a key distinction between resources and capabilities. Resources are inputs into the production process—they are the basic units of analysis. The individual resources of the firm include items of capital equipment, skills of individual employees, patents, brand names, finance, and so on.

Figure 2. Resources as the Basis for Profitability



But, on their own, few resources are productive. Productive activity requires the cooperation and coordination of teams of resources. A capability is the capacity for a team of resources to perform some task or activity. While resources are the source of a firm's capabilities, capabilities are the main source of its competitive advantage.

Identifying Resources—A major handicap in identifying and appraising a firm's resources is that management information systems typically provide only a fragmented and incomplete picture of the firm's resource base. Financial balance sheets are notoriously inadequate because they disregard intangible resources and people-based skills—probably the most strategically important resources of the firm.¹⁴ Classification can provide a useful starting point. Six major categories of resource have been suggested: financial resources, physical resources, human resources, technological resources, reputation, and organizational resources.¹⁵ The reluctance of accountants to extend the boundaries of corporate balance sheets beyond tangible assets partly reflects difficulties of valuation. The heterogeneity and imperfect transferability of most intangible resources precludes the use of market prices. One approach to valuing intangible resources is to take the difference between the stock market value of the firm and the replacement value of its tangible assets.¹⁶ On a similar basis, valuation ratios provide some indication of the importance of firms' intangible resources. Table 1 shows that the highest valuation ratios are found among companies with valuable patents and technology assets (notably drug companies) and brand-rich consumer-product companies.

The primary task of a resource-based approach to strategy formulation is maximizing rents over time. For this purpose we need to investigate the relationship between resources and organizational capabilities. However, there are also direct links between resources and profitability which raise issues for the strategic management of resources:

- *What opportunities exist for economizing on the use of resources?* The ability to maximize productivity is particularly important in the case of tangible resources such as plant and machinery, finance, and people. It may involve using fewer resources to support the same level of business, or using the existing resources to support a larger volume of business. The success of aggressive acquirors, such as ConAgra in the U.S. and Hanson in Britain, is based upon expertise in rigorously pruning the financial, physical, and human assets needed to support the volume of business in acquired companies.
- *What are the possibilities for using existing assets more intensely and in more profitable employment?* A large proportion of corporate acquisitions are motivated by the belief that the resources of the acquired company can be put to more profitable use. The returns from transferring existing assets into more productive employment can be substantial.

The remarkable turnaround in the performance of the Walt Disney Company between 1985 and 1987 owed much to the vigorous exploitation of Disney's considerable and unique assets: accelerated development of Disney's vast landholdings (for residential development as well as entertainment purposes); exploitation of Disney's huge film library through cable TV, videos, and syndication; fuller utilization of Disney's studios through the formation of Touchstone Films; increased marketing to improve capacity utilization at Disney theme parks.

Identifying and Appraising Capabilities

The capabilities of a firm are what it can do as a result of teams of resources working together. A firm's capabilities can be identified and appraised using a standard functional classification of the firm's activities.

Table 1. Twenty Companies among the U.S. Top 100 Companies with the Highest Ratios of Stock Price to Book Value on March 16, 1990.

Company	Industry	Valuation Ratio
Coca Cola	Beverages	8.77
Microsoft	Computer software	8.67
Merck	Pharmaceuticals	8.39
American Home Products	Pharmaceuticals	8.00
Wal Mart Stores	Retailing	7.51
Limited	Retailing	6.65
Warner Lambert	Pharmaceuticals	6.34
Waste Management	Pollution control	6.18
Marrion Merrell Dow	Pharmaceuticals	6.10
McCaw Cellular Communications	Telecom equipment	5.90
Bristol Myers Squibb	Pharmaceuticals	5.48
Toys R Us	Retailing	5.27
Abbot Laboratories	Pharmaceuticals	5.26
Walt Disney	Entertainment	4.90
Johnson & Johnson	Health care products	4.85
MCI Communications	Telecommunications	4.80
Eli Lilly	Pharmaceuticals	4.70
Kellogg	Food products	4.58
H.J. Heinz	Food products	4.38
Pepsico	Beverages	4.33

Source: *The 1990 Business Week Top 1000*

For example, Snow and Hrebiniak examined capabilities (in their terminology, "distinctive competencies") in relation to ten functional areas.¹⁷ For most firms, however, the most important capabilities are likely to be those which arise from an integration of individual functional capabilities. For example, McDonald's possesses outstanding functional capabilities within product development, market research, human resource management, financial control, and operations management. However, critical to McDonald's success is the integration of these functional capabilities to create McDonald's remarkable consistency of products and services in thousands of restaurants spread across most of the globe. Hamel and Prahalad use the term "core competencies" to describe these central, strategic capabilities. They are "the collective learning in the organization, especially how to coordinate diverse production skills and integrate multiple streams of technology."¹⁸ Examples of core competencies include:

- NEC's integration of computer and telecommunications technology
- Philips' optical-media expertise
- Casio's harmonization of know-how in miniaturization, microprocessor design, material science, and ultrathin precision casting
- Canon's integration of optical, microelectronic, and precision-mechanical technologies which forms the basis of its success in cameras, copiers, and facsimile machines
- Black and Decker's competence in the design and manufacture of small electric motors

A key problem in appraising capabilities is maintaining objectivity. Howard Stevenson observed a wide variation in senior managers' perceptions of their organizations' distinctive competencies.¹⁹ Organizations frequently fall victim to past glories, hopes for the future, and wishful thinking. Among the failed industrial companies of both America and Britain are many which believed themselves world leaders with superior products and customer loyalty. During the 1960s, the CEOs of both Harley-Davidson and BSA-Triumph scorned the idea that Honda threatened their supremacy in the market for "serious motorcycles."²⁰ The failure of the U.S. steel companies to respond to increasing import competition during the 1970s was similarly founded upon misplaced confidence in their quality and technological leadership.²¹

The critical task is to assess capabilities relative to those of competitors. In the same way that national prosperity is enhanced through specialization on the basis of comparative advantages, so for the firm, a successful strategy is one which exploits relative strengths. Federal Express's primary capabilities are those which permit it to operate a national delivery system that can guarantee next day delivery; for the British retailer Marks and Spencer, it is the ability to manage supplier relations to ensure a high and consistent level of product quality; for General Electric, it is a system of

corporate management that reconciles control, coordination, flexibility, and innovation in one of the world's largest and most diversified corporations. Conversely, failure is often due to strategies which extend the firm's activities beyond the scope of its capabilities.

Capabilities as Organizational Routines—Creating capabilities is not simply a matter of assembling a team of resources: capabilities involve complex patterns of coordination between people and between people and other resources. Perfecting such coordination requires learning through repetition. To understand the anatomy of a firm's capabilities, Nelson and Winter's concept of "organizational routine" is illuminating. Organizational routines are regular and predictable patterns of activity which are made up of a sequence of coordinated actions by individuals. A capability is, in essence, a routine, or a number of interacting routines. The organization itself is a huge network of routines. These include the sequence of routines which govern the passage of raw material and components through the production process, and top management routines which include routines for monitoring business unit performance, for capital budgeting, and for strategy formulation.

The concept of organizational routines offers illuminating insights into the relationships between resources, capabilities, and competitive advantage:

- *The relationship between resources and capabilities.* There is no pre-determined functional relationship between the resources of a firm and its capabilities. The types, the amounts, and the qualities of the resources available to the firm have an important bearing on what the firm can do since they place constraints upon the range of organizational routines that can be performed and the standard to which they are performed. However, a key ingredient in the relationship between resources and capabilities is the ability of an organization to achieve cooperation and coordination within teams. This requires that an organization motivate and socialize its members in a manner conducive to the development of smooth-functioning routines. The organization's style, values, traditions, and leadership are critical encouragements to the cooperation and commitment of its members. These can be viewed as intangible resources which are common ingredients of the whole range of a corporation's organizational routines.
- *The trade-off between efficiency and flexibility.* Routines are to the organization what skills are to the individual. Just as the individual's skills are carried out semi-automatically, without conscious coordination, so organizational routines involve a large component of tacit knowledge, which implies limits on the extent to which the organization's capabilities can be articulated. Just as individual skills become rusty when not exercised, so it is difficult for organizations to retain coordinated responses

to contingencies that arise only rarely. Hence there may be a trade-off between efficiency and flexibility. A limited repertoire of routines can be performed highly efficiently with near-perfect coordination—all in the absence of significant intervention by top management. The same organization may find it extremely difficult to respond to novel situations.

- *Economies of experience.* Just as individual skills are acquired through practice over time, so the skills of an organization are developed and sustained only through experience. The advantage of an established firm over a newcomer is primarily in the organizational routines that it has perfected over time. The Boston Consulting Group's "experience curve" represents a naive, yet valuable attempt to relate the experience of the firm to its performance. However, in industries where technological change is rapid, new firms may possess an advantage over established firms through their potential for faster learning of new routines because they are less committed to old routines.
- *The complexity of capabilities.* Organizational capabilities differ in their complexity. Some capabilities may derive from the contribution of a single resource. Du Pont's successful development of several cardiovascular drugs during the late 1980s owed much to the research leadership of its leading pharmacologist Pieter Timmermans.²² Drexel Burnham Lambert's capability in junk bond underwriting during the 1980s resided almost entirely in the skills of Michael Millken. Other routines require highly complex interactions involving the cooperation of many different resources. Walt Disney's "imagineering" capability involves the integration of ideas, skills, and knowledge drawn from movie making, engineering, psychology, and a wide variety of technical disciplines. As we shall see, complexity is particularly relevant to the sustainability of competitive advantage.

Evaluating the Rent-Earning Potential: Sustainability

The returns to a firm's resources and capabilities depend upon two key factors: first, the sustainability of the competitive advantage which resources and capabilities confer upon the firm; and, second, the ability of the firm to appropriate the rents earned from its resources and capabilities.

Over the long-term, competitive advantage and the returns associated with it are eroded both through the depreciation of the advantaged firm's resources and capabilities and through imitation by rivals. The speed of erosion depends critically upon the characteristics of the resources and capabilities. Consider markets where competitive advantage is unsustainable: in "efficient" markets (most closely approximated by the markets for securities, commodities, and foreign exchange) competitive advantage is absent; market prices reflect all available information, prices adjust instantaneously to new information, and traders can only expect normal returns.

The absence of competitive advantage is a consequence of the resources required to compete in these markets. To trade in financial markets, the basic requirements are finance and information. If both are available on equal terms to all participants, competitive advantage cannot exist. Even if privileged information is assumed to exist ("weakly efficient" markets), competitive advantage is not sustainable. Once a trader acts upon privileged information, transactions volume and price movements signal insider activity, and other traders are likely to rush in seeking a piece of the action.

The essential difference between industrial markets and financial markets lies in the resource requirements of each. In industrial markets, resources are specialized, immobile, and long-lasting. As a result, according to Richard Caves, a key feature of industrial markets is the existence of "committed competition—rivalrous moves among incumbent producers that involve resource commitments that are irrevocable for non-trivial periods of time."²³ The difficulties involved in acquiring the resources required to compete and the need to commit resources long before a competitive move can be initiated also implies that competitive advantage is much more sustainable than it is in financial markets. Resource-based approaches to the theory of competitive advantage point towards four characteristics of resources and capabilities which are likely to be particularly important determinants of the sustainability of competitive advantage: *durability, transparency, transferability, and replicability.*

Durability—In the absence of competition, the longevity of a firm's competitive advantage depends upon the rate at which the underlying resources and capabilities depreciate or become obsolete. The durability of resources varies considerably: the increasing pace of technological change is shortening the useful life-spans of most capital equipment and technological resources. On the other hand, reputation (both brand and corporate) appears to depreciate relatively slowly, and these assets can normally be maintained by modest rates of replacement investment. Many of the consumer brands which command the strongest loyalties today (e.g., Heinz sauces, Kellogg's cereals, Campbell's soup, Hoover vacuum cleaners) have been market leaders for close to a century. Corporate reputation displays similar longevity: the reputations of GE, IBM, Du Pont, and Proctor and Gamble as well-managed, socially responsible, financially sound companies which produce reliable products and treat their employees well has been established over several decades. While increasing environmental turbulence shortens the life spans of many resources, it is possible that it may have the effect of bolstering brand and corporate reputations.

Firm capabilities have the potential to be more durable than the resources upon which they are based because of the firm's ability to maintain capabilities through replacing individual resources (including people) as they wear out or move on. Rolls Royce's capability in the craft-based manufacture of luxury cars and 3M's capability in new product introduction have

been maintained over several generations of employees. Such longevity depends critically upon the management of these capabilities to ensure their maintenance and renewal. One of the most important roles that organizational culture plays in sustaining competitive advantage may be through its maintenance support for capabilities through the socialization of new employees.²⁴

Transparency—The firm's ability to sustain its competitive advantage over time depends upon the speed with which other firms can imitate its strategy. Imitation requires that a competitor overcomes two problems. First is the information problem: What is the competitive advantage of the successful rival, and how is it being achieved? Second is the strategy duplication problem: How can the would-be competitor amass the resources and capabilities required to imitate the successful strategy of the rival? The information problem is a consequence of imperfect information on two sets of relationships. If a firm wishes to imitate the strategy of a rival, it must first establish the capabilities which underlie the rival's competitive advantage, and then it must determine what resources are required to replicate these capabilities. I refer to this as the "transparency" of competitive advantage. With regard to the first transparency problem, a competitive advantage which is the consequence of superior capability in relation to a single performance variable is more easy to identify and comprehend than a competitive advantage that involves multiple capabilities conferring superior performance across several variables. Cray Research's success in the computer industry rests primarily upon its technological capability in relation to large, ultra-powerful computers. IBM's superior performance is multi-dimensional and is more difficult to understand. It is extremely difficult to distinguish and appraise the relative contributions to IBM's success of research capability, scale economies in product development and manufacturing, self-sufficiency through backward integration, and superior customer service through excellence in sales, service, and technical support.

With regard to the second transparency problem, a capability which requires a complex pattern of coordination between large numbers of diverse resources is more difficult to comprehend than a capability which rests upon the exploitation of a single dominant resource. For example, Federal Express's next-day delivery capability requires close cooperation between numerous employees, aircraft, delivery vans, computerized tracking facilities, and automated sorting equipment, all coordinated into a single system. By contrast, Atlantic Richfield's low-cost position in the supply of gasoline to the California market rests simply on its access to Alaskan crude oil. Imperfect transparency is the basis for Lippman and Rumelt's theory of "uncertain imitability": the greater the uncertainty within a market over how successful companies "do it," the more inhibited are potential entrants, and the higher the level of profit that established firms can maintain within that market.²⁵

Transferability—Once the established firm or potential entrant has established the sources of the superior performance, imitation then requires amassing the resources and capabilities necessary for a competitive challenge. The primary source of resources and capabilities is likely to be the markets for these inputs. If firms can acquire (on similar terms) the resources required for imitating the competitive advantage of a successful rival, then that rival's competitive advantage will be short lived. As we have seen, in financial markets the easy access by traders to finance and information causes competitive advantage to be fleeting. However, most resources and capabilities are not freely transferable between firms; hence, would-be competitors are unable to acquire (on equal terms) the resources needed to replicate the competitive advantage of an incumbent firm. Imperfections in transferability arise from several sources:

- *Geographical immobility.* The costs of relocating large items of capital equipment and highly specialized employees puts firms which are acquiring these resources at a disadvantage to firms which already possess them.
- *Imperfect information.* Assessing the value of a resource is made difficult by the heterogeneity of resources (particularly human resources) and by imperfect knowledge of the potential productivity of individual resources.²⁶ The established firm's ability to build up information over time about the productivity of its resources gives it superior knowledge to that of any prospective purchaser of the resources in question.²⁷ The resulting imperfection of the markets for productive resources can then result in resources being either underpriced or overpriced, thus giving rise to differences in profitability between firms.²⁸
- *Firm-specific resources.* Apart from the transactions costs arising from immobility and imperfect information, the value of a resource may fall on transfer due to a decline in its productivity. To the extent that brand reputation is associated with the company which created the brand reputation, a change in ownership of the brand name erodes its value. Once Rover, MG, Triumph, and Jaguar were merged into British Leyland, the values of these brands in differentiating automobiles declined substantially. Employees can suffer a similar decline in productivity in the process of inter-firm transfer. To the extent that an employee's productivity is influenced by situational and motivational factors, then it is unreasonable to expect that a highly successful employee in one company can replicate his/her performance when hired away by another company. Some resources may be almost entirely firm specific—corporate reputation can only be transferred by acquiring the company as a whole, and even then the reputation of the acquired company normally depreciates during the change in ownership.²⁹
- *The immobility of capabilities.* Capabilities, because they require interactive teams of resources, are far more immobile than individual

resources—they require the transfer of the whole team. Such transfers can occur (e.g., the defection of 16 of First Boston's mergers and acquisitions staff to Wasserstein, Perella and Company).³⁰ However, even if the resources that constitute the team are transferred, the nature of organizational routines—in particular, the role of tacit knowledge and unconscious coordination—makes the recreation of capabilities within a new corporate environment uncertain.

Replicability—Imperfect transferability of resources and capabilities limits the ability of a firm to buy in the means to imitate success. The second route by which a firm can acquire a resource or capability is by internal investment. Some resources and capabilities can be easily imitated through replication. In retailing, competitive advantages which derive from electronic point-of-sale systems, retailer charge cards, and extended hours of opening can be copied fairly easily by competitors. In financial services, new product innovations (such as interest rate swaps, stripped bonds, money market accounts, and the like) are notorious for their easy imitation by competitors.

Much less easily replicable are capabilities based upon highly complex organizational routines. IBM's ability to motivate its people and Nucor's outstanding efficiency and flexibility in steel manufacture are combinations of complex routines that are based upon tacit rather than codified knowledge and are fused into the respective corporate cultures. Some capabilities appear simple but prove exceptionally difficult to replicate. Two of the simplest and best-known Japanese manufacturing practices are just-in-time scheduling and quality circles. Despite the fact that neither require sophisticated knowledge or complex operating systems, the cooperation and attitudinal changes required for their effective operation are such that few American and European firms have introduced either with the same degree of success as Japanese companies. If apparently simple practices such as these are deceptively difficult to imitate, it is easy to see how firms that develop highly complex capabilities can maintain their competitive advantage over very long periods of time. Xerox's commitment to customer service is a capability that is not located in any particular department, but it permeates the whole corporation and is built into the fabric and culture of the corporation.

Even where replication is possible, the dynamics of stock-flow relationships may still offer an advantage to incumbent firms. Competitive advantage depends upon the stock of resources and capabilities that a firm possesses. Dierickx and Cool show that firms which possess the initial stocks of the resources required for competitive advantage may be able to sustain their advantages over time.³¹ Among the stock-flow relationships they identify as sustaining advantage are: "asset mass efficiencies"—the initial amount of the resource which the firm possesses influences the pace

at which the resource can be accumulated; and "time compression diseconomies"—firms which rapidly accumulate a resource incur disproportionate costs ("crash programs" of R&D and "blitz" advertising campaigns tend to be less productive than similar expenditures made over a longer period).

Evaluating Rent-Earning Potential: Appropriability

The returns to a firm from its resources and capabilities depend not only on sustaining its competitive position over time, but also on the firm's ability to appropriate these returns. The issue of appropriability concerns the allocation of rents where property rights are not fully defined. Once we go beyond the financial and physical assets valued in a company's balance sheet, ownership becomes ambiguous. The firm owns intangible assets such as patents, copyrights, brand names, and trade secrets, but the scope of property rights may lack precise definition. In the case of employee skills, two major problems arise: the lack of clear distinction between the technology of the firm and the human capital of the individual; and the limited control which employment contracts offer over the services provided by employees. Employee mobility means that it is risky for a firm's strategy to be dependent upon the specific skills of a few key employees. Also, such employees can bargain with the firm to appropriate the major part of their contribution to value added.

The degree of control exercised by a firm and the balance of power between the firm and an individual employee depends crucially on the relationship between the individual's skills and organizational routines. The more deeply embedded are organizational routines within groups of individuals and the more are they supported by the contributions of other resources, then the greater is the control that the firm's management can exercise. The ability of IBM to utilize its advanced semiconductor research as an instrument of competitive advantage depends, in part, upon the extent to which the research capability is a team asset rather than a reflection of the contribution of brilliant individuals. A firm's dependence upon skills possessed by highly trained and highly mobile key employees is particularly important in the case of professional service companies where employee skills are the overwhelmingly important resource.³² Many of the problems that have arisen in acquisitions of human-capital-intensive companies arise from conflicts over property rights between the acquiring company and employees of the acquired company. An interesting example is the protracted dispute which followed the acquisition of the New York advertising agency Lord, Geller, Fredrico, Einstein by WPP Group in 1988. Most of the senior executives of the acquired company left to form a new advertising agency taking several former clients with them.³³ Similar conflicts have arisen over technology ownership in high-tech start-ups founded by former employees of established companies.³⁴

Where ownership is ambiguous, relative bargaining power is the primary determinant of the allocation of the rents between the firm and its employees where. If the individual employee's contribution to productivity is clearly identifiable, if the employee is mobile, and the employee's skills offer similar productivity to other firms, then the employee is well placed to bargain for that contribution. If the increased gate receipts of the L.A. Kings ice hockey team can be attributed primarily to the presence of Wayne Gretzky on the team and if Gretzky can offer a similar performance enhancement to other teams, then he is in a strong position to appropriate (as salary and bonuses) most of the increased contribution. The less identifiable is the individual's contribution, and the more firm-specific are the skills being applied, the greater is the proportion of the return which accrues to the firm. Declining profitability among investment banks encouraged several to reassert their bargaining power vis-à-vis their individual stars and in-house gurus by engineering a transfer of reputation from these key employees to the company as a whole. At Citibank, Salomon Brothers, Merrill Lynch, and First Boston, this resulted in bitter conflicts between top management and some senior employees.³⁵

Formulating Strategy

Although the foregoing discussion of the links between resources, capabilities, and profitability has been strongly theoretical in nature, the implications for strategy formulation are straightforward. The analysis of the rent-generating potential of resources and capabilities concludes that the firm's most important resources and capabilities are those which are durable, difficult to identify and understand, imperfectly transferable, not easily replicated, and in which the firm possesses clear ownership and control. These are the firm's "crown jewels" and need to be protected; and they play a pivotal role in the competitive strategy which the firm pursues. The essence of strategy formulation, then, is to design a strategy that makes the most effective use of these core resources and capabilities. Consider, for example, the remarkable turnaround of Harley-Davidson between 1984 and 1988. Fundamental was top management's recognition that the company's sole durable, non-transferable, irreplicable asset was the Harley-Davidson image and the loyalty that accompanied that image. In virtually every other area of competitive performance—production costs, quality, product and process technology, and global market scope—Harley was greatly inferior to its Japanese rivals. Harley's only opportunity for survival was to pursue a strategy founded upon Harley's image advantage, while simultaneously minimizing Harley's disadvantages in other capabilities. Harley-Davidson's new models introduced during this period were all based around traditional design features, while Harley's marketing strategy involved extending the appeal of the Harley image of individuality and

toughness from its traditional customer group to more affluent professional types. Protection of the Harley-Davidson name by means of tougher controls over dealers was matched by wider exploitation of the Harley name through extensive licensing. While radical improvements in manufacturing efficiency and quality were essential components of the turnaround strategy, it was the enhancing and broadening of Harley's market appeal which was the primary driver of Harley's rise from 27 to 44 percent of the U.S. heavyweight motorcycle market between 1984 and 1988, accompanied by an increase in net income from \$6.5 million to \$29.8 million.

Conversely, a failure to recognize and exploit the strategic importance of durable, untransferable, and irreplicable resources almost inevitably has dire consequences. The troubles of BankAmerica Corporation during the mid-1980s can be attributed to a strategy that became increasingly dissociated from the bank's most important assets: its reputation and market position in retail banking in the Western United States. The disastrous outcome of U.S. Air Group's acquisition of the Californian carrier, PSA, is similarly attributable to U.S. Air's disregard for PSA's most important asset—its reputation in the Californian market for a friendly, laid-back style of service.

Designing strategy around the most critically important resources and capabilities may imply that the firm limits its strategic scope to those activities where it possesses a clear competitive advantage. The principal capabilities of Lotus, the specialist manufacturer of sports cars, are in design and engineering development; it lacked both the manufacturing capabilities or the sales volume to compete effectively in the world's auto market. Lotus's turnaround during the 1980s followed its decision to specialize upon design and development consulting for other auto manufacturers, and to limit its own manufacturing primarily to formula one racing cars.

The ability of a firm's resources and capabilities to support a sustainable competitive advantage is essential to the time frame of a firm's strategic planning process. If a company's resources and capabilities lack durability or are easily transferred or replicated, then the company must either adopt a strategy of short-term harvesting or it must invest in developing new sources of competitive advantage. These considerations are critical for small technological start-ups where the speed of technological change may mean that innovations offer only temporary competitive advantage. The company must seek either to exploit its initial innovation before it is challenged by stronger, established rivals or other start-ups, or it must establish the technological capability for a continuing stream of innovations. A fundamental flaw in EMI's exploitation of its invention of the CT scanner was a strategy that failed to exploit EMI's five-year technical lead in the development and marketing of the X-ray scanner and failed to establish the breadth of technological and manufacturing capability required to establish a fully fledged medical electronics business.

Where a company's resources and capabilities are easily transferable or

replicable, sustaining a competitive advantage is only feasible if the company's market is unattractively small or if it can obscure the existence of its competitive advantage. Filofax, the long-established British manufacturer of personal organizers, was able to dominate the market for its products so long as that market remained small. The boom in demand for Filofaxes during the mid-1980s was, paradoxically, a disaster for the company. Filofax's product was easily imitated and yuppie-driven demand growth spawned a host of imitators. By 1989, the company was suffering falling sales and mounting losses.³⁶ In industries where competitive advantages based upon differentiation and innovation can be imitated (such as financial services, retailing, fashion clothing, and toys), firms have a brief window of opportunity during which to exploit their advantage before imitators erode it away. Under such circumstances, firms must be concerned not with sustaining the existing advantages, but with creating the flexibility and responsiveness to that permits them to create new advantages at a faster rate than the old advantages are being eroded by competition.

Transferability and replicability of resources and capabilities is also a key issue in the strategic management of joint ventures. Studies of the international joint ventures point to the transferability of each party's capabilities as a critical determinant of the allocation of benefits from the venture. For example, Western companies' strengths in distribution channels and product technology have been easily exploited by Japanese joint venture partners, while Japanese manufacturing excellence and new product development capabilities have proved exceptionally difficult for Western companies to learn.³⁷

Identifying Resource Gaps and Developing the Resource Base

The analysis so far has regarded the firm's resource base as predetermined, with the primary task of organizational strategy being the deployment of these resources so as to maximize rents over time. However, a resource-based approach to strategy is concerned not only with the deployment of existing resources, but also with the development of the firm's resource base. This includes replacement investment to maintain the firm's stock of resources and to augment resources in order to buttress and extend positions of competitive advantage as well as broaden the firm's strategic opportunity set. This task is known in the strategy literature as filling "resource gaps."³⁸

Sustaining advantage in the face of competition and evolving customer requirements also requires that firms constantly develop their resources bases. Such "upgrading" of competitive advantage occupies a central position in Michael Porter's analysis of the competitive advantage of nations.³⁹ Porter's analysis of the ability of firms and nations to establish and maintain international competitive success depends critically upon the ability to continually innovate and to shift the basis of competitive advantage from "basic" to "advanced" factors of production. An important feature of these

"advanced" factors of production is that they offer a more sustainable competitive advantage because they are more specialized (therefore less mobile through market transfer) and less easy to replicate.

Commitment to upgrading the firm's pool of resources and capabilities requires strategic direction in terms of the capabilities that will form the basis of the firm's future competitive advantage. Thus, Prahalad and Hamel's notion of "core competencies" is less an identification of a company's current capabilities than a commitment to a path of future development. For example, NEC's strategic focus on computing and communications in the mid-1970s was not so much a statement of the core strengths of the company as it was a long-term commitment to a particular path of technological development.

Harmonizing the exploitation of existing resources with the development of the resources and capabilities for competitive advantage in the future is a subtle task. To the extent that capabilities are learned and perfected through repetition, capabilities develop automatically through the pursuit of a particular strategy. The essential task, then, is to ensure that strategy constantly pushes slightly beyond the limits of the firm's capabilities at any point of time. This ensures not only the perfection of capabilities required by the current strategy, but also the development of the capabilities required to meet the challenges of the future. The idea that, through pursuing its present strategy, a firm develops the expertise required for its future strategy is referred to by Hiroyuki Itami as "dynamic resource fit":

Effective strategy in the present builds invisible assets, and the expanded stock enables the firm to plan its future strategy to be carried out. And the future strategy must make effective use of the resources that have been amassed.⁴⁰

Matsushita is a notable exponent of this principle of parallel and sequential development of strategy and capabilities. For example, in developing production in a foreign country, Matsushita typically began with the production of simple products, such as batteries, then moved on the production of products requiring greater manufacturing and marketing sophistication:

In every country batteries are a necessity, so they sell well. As long as we bring a few advanced automated pieces of equipment for the processes vital to final product quality, even unskilled labor can produce good products. As they work on this rather simple product, the workers get trained, and this increased skill level then permits us to gradually expand production to items with increasingly higher technology level, first radios, then televisions.⁴¹

The development of capabilities which can then be used as the basis for broadening a firm's product range is a common feature of successful strategies of related diversification. Sequential product addition to accompany the development of technological, manufacturing, and marketing expertise was a feature of Honda's diversification from motorcycles to cars, generators, lawnmowers, and boat engines; and of 3M's expansion from abrasives to adhesives, video tape, and computer disks.

In order both to fully exploit a firm's existing stock of resources, and to develop competitive advantages for the future, the external acquisition of complementary resources may be necessary. Consider the Walt Disney Company's turnaround between 1984 and 1988. In order for the new management to exploit more effectively Disney's vast, under-utilized stock of unique resources, new resources were required. Achieving better utilization of Disney's film studios and expertise in animation required the acquisition of creative talent in the form of directors, actors, scriptwriters, and cartoonists. Putting Disney's vast real estate holdings to work was assisted by the acquisition of the property development expertise of the Arvida Corporation. Building a new marketing team was instrumental in increasing capacity utilization at Disneyland and Disney World.

Conclusion

The resources and capabilities of a firm are the central considerations in formulating its strategy: they are the primary constants upon which a firm can establish its identity and frame its strategy, and they are the primary sources of the firm's profitability. The key to a resource-based approach to strategy formulation is understanding the relationships between resources, capabilities, competitive advantage, and profitability—in particular, an understanding of the mechanisms through which competitive advantage can be sustained over time. This requires the design of strategies which exploit to maximum effect each firm's unique characteristics.

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