8

Cost Advantage

SEARS MOTOR BUGGY: $395
For car complete with rubber tires, Timken roller bearing axles, top, storm front, three oil-burning lamps, horn, and one gallon of lubricating oil. Nothing to buy but gasoline.

. . . We found there was a maker of automobile frames that was making 75 percent of all the frames used in automobile construction in the United States. We found on account of the volume of business that this concern could make frames cheaper for automobile manufacturers than the manufacturers could make them themselves. We went to this frame maker and asked him to make frames for the Sears Motor Buggy and then to name us prices for those frames in large quantities. And so on throughout the whole construction of the Sears Motor Buggy. You will find every piece and every part has been given the most careful study; you will find that the Sears Motor Buggy is made of the best possible material; it is constructed to take the place of the top buggy; it is built in our own factory, under the direct supervision of our own expert, a man who has had fifteen years of automobile experience, a man who has for the past three years worked with us to develop exactly the right car for the people at a price within the reach of all.

—EXTRACT FROM AN ADVERTISEMENT IN THE SEARS ROEBUCK & CO. CATALOG, 1909: 1150

OUTLINE

Introduction and Objectives

For some industries, cost advantage is the predominant basis for competitive advantage: in commodities there is limited opportunity for competing on anything else. But even where competition focuses on product differentiation, intensifying competition has resulted in cost efficiency becoming a prerequisite for profitability. Some of the most dramatic examples of companies and industries being transformed through the pursuit of cost efficiency are in sectors where competition has increased sharply due to deregulation, such as airlines, telecommunications, banking, and electrical power generation.

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

- Identify the determinants of relative cost within the industry or activity ("cost drivers").
- Assess a firm's cost position relative to its competitors and identify the factors responsible for cost differentials.
- Recommend cost-reduction measures.

The analysis in this chapter is oriented around these objectives. In pursuing these objectives, we shall examine techniques for:

- Identifying the basic sources of cost advantage in an industry.
- Appraising the cost position of a firm within its industry by disaggregating the firm into its separate activities.
- Using the analysis of costs and relative cost position as a basis for recommending strategies for enhancing cost competitiveness.

Strategy and Cost Advantage

Historically, strategic management has emphasized cost advantage as the primary basis for competitive advantage in an industry. This focus on cost reflected the traditional emphasis by economists on price as the principal medium of competition – competing on price depends on cost efficiency. It also reflected the strategy preoccupations of large industrial corporations. For much of the 20th century, the development of large corporations was dominated by the quest for economies of scale and scope through investments in mass production and mass distribution. During the 1960s, the quest for scale efficiency provided the driving force for mergers in automobiles, steel, textiles, shipbuilding and other manufacturing industries.

In 1968 the Boston Consulting Group (BCG) published *Perspectives in Experience*, which documented the relationship between cost and accumulated experience. The result was a profound shift in thinking about cost analysis and the emergence of the *experience curve* as one of the best-known and most influential concepts in the history of strategic management (see Strategy Capsule 8.1).

STRATEGY CAPSULE 8.1

BCG and the Experience Curve

The experience curve has its basis in the systematic reduction in the time taken to build airplanes and Liberty ships during World War II.[1] The relationship was generalized by BCG to encompass not just economies in direct labor, but in all costs (excluding materials). In a series of studies, ranging from bottle caps and refrigerators to long-distance calls and insurance policies, BCG observed a remarkable regularity in the reductions in unit costs with increased cumulative output. BCG summarized its observations in its "Law of Experience":

> *The unit cost of value added to a standard product declines by a constant percentage (typically between 20 and 30%) each time cumulative output doubles.*

("Unit cost of value added" is total cost per unit of production less the cost per unit of production of bought-in components and materials.) The figure below shows examples of experience curves.

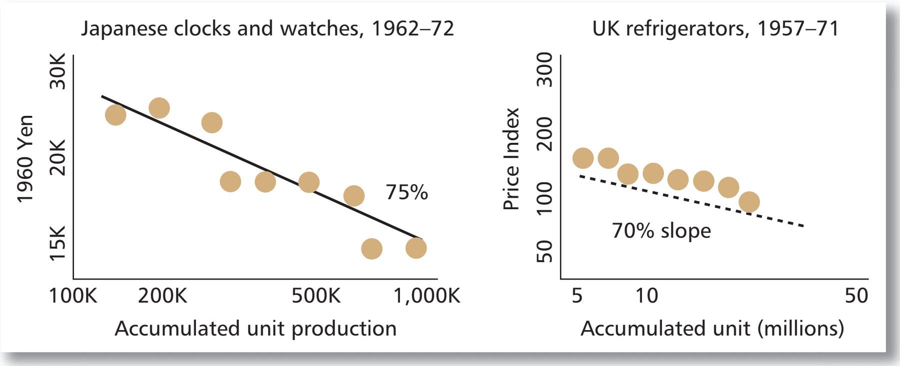
The relationship between unit cost and production volume may be expressed as follows:

$$C_n = C_1 \cdot n^{-a}$$

where C_1 is the cost of the first unit of production
C_n is the cost of the *n*th unit of production
n is the cumulative volume of production
a is the elasticity of cost with regard to output.

The experience curve has important implications for business strategy. If a firm can expand its output faster than its competitors, it can move down the experience curve more rapidly and open up a widening cost differential. The implication drawn by BCG was that a firm's primary strategic goal should be maximizing market share.[2]

To achieve this, firms should price not on the basis of current costs, but on the basis of anticipated costs – *penetration pricing* rather than *full-cost pricing*. In the British motorcycle industry, BCG observed that British motorcycle



SOURCE: BOSTON CONSULTING GROUP

manufacturers adopted cost-plus pricing, whereas Honda priced to meet market share objectives.[3] The quest for experience-based economies also points to the advantages of increasing volume by broadening product range and expanding internationally.[4]

Empirical studies confirm a positive relationship between profitability and market share.[5] However, this does not mean that pursuing market share necessarily leads to higher profits. It could be that causation runs the other way (profitable companies use their profits to build to build market share) or that both profitability and market share are the joint outcome of some underlying factor – innovation or cheaper labor.[6] Even if market share dose lead to higher profitability, it could be that the costs of increasing market share outweigh the profitability advantages achieved.[7] This is especially likely if a number of companies are competing to grow their market shares.

Notes:

1 Louis E. Yelle, "The Learning Curve: Historical Review and Comprehensive Survey," *Decision Sciences* 10 (1979): 302–28.

2 For an analysis of the effect of market share on profit under differently sloped experience curves, see David Ross, "Learning to Dominate," *Journal of Industrial Economics* 34 (1986): 337–53.

3 Boston Consulting Group, *Strategy Alternatives for the British Motorcycle Industry* (London: Her Majesty's Stationery Office, 1975).

4 Charles Baden-Fuller, "The Implications of the Learning Curve for Firm Strategy and Public Policy," *Applied Economics* 15 (1983): 541–51.

5 Robert D. Buzzell, Bradley T. Gale, and Ralph Sultan, "Market Share – A Key to Profitability," *Harvard Business Review* (January–February 1975); Robert Jacobsen and David Aaker, "Is Market Share All That It's Cracked up to Be?" *Journal of Marketing* 49 (Fall 1985): 11–22.

6 Richard Rumelt and Robin Wensley, using PIMS data, found the relationship between market share and profitability to be the result of both being joint outcomes of a risky competitive process. "In Search of the Market Share Effect," Paper MGL-63 (Graduate School of Management, UCLA, 1981).

7 Robin Wensley, "PIMS and BCG: New Horizons or False Dawn?," *Strategic Management Journal* 3 (1982): 147–58.

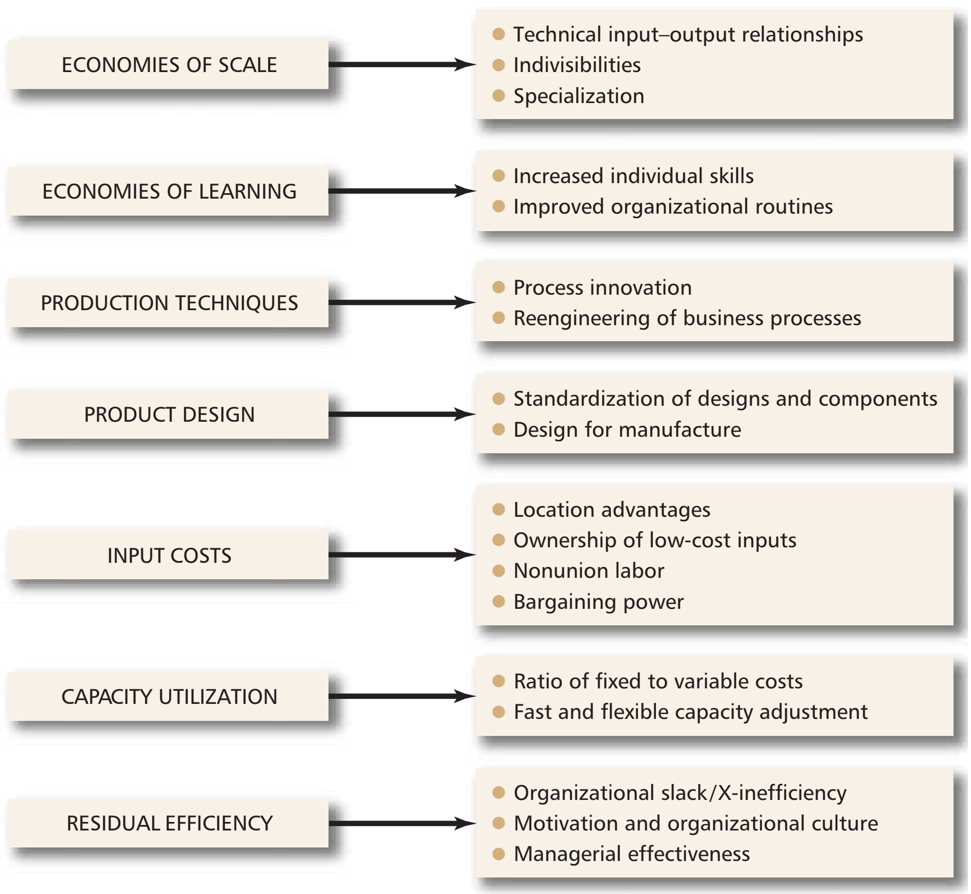
In recent decades, companies have been forced to think more broadly and radically about cost efficiency. Cost advantage has shifted to companies benefiting from low labor costs (e.g. Chinese companies) and those taking advantage of new technologies (Skype and Vonage in telephony). The result has been more dramatic and innovative approaches to cost reduction involving outsourcing, process reengineering, and organizational delayering.

Cost analysis has also adjusted to a more explicit recognition that cost advantage is the result of multiple factors, the balance of which varies greatly from industry to industry. In the clothing industry, wage rates are the critical factor; in petrochemicals, it is feedstock costs; while in semiconductors, it is yield rates. In some industries there may be alternative routes to low cost – in the steel industry, Severstal of Russia with its low input costs and Nucor of the US with its advanced technologies and high productivity are both low-cost producers. The key to analyzing cost advantage is to identify the key cost drivers within a particular industry.

The Sources of Cost Advantage

The key to cost analysis is to go beyond mechanistic approaches such as the experience curve and probe the factors that determine a firm's cost position. There are seven principal determinants of a firm's unit costs (cost per unit of output) relative to its competitors; we refer to these as *cost drivers* (see Figure 8.1).

FIGURE 8.1 The drivers of cost advantage



The relative importance of these different cost drivers varies across industries, across firms within an industry, and across the different activities within a firm. By examining each of these different cost drivers, in relation to a particular firm we can do the following:

- Analyze a firm's cost position relative to its competitors and diagnose the sources of inefficiency.
- Make recommendations as to how a firm can improve its cost efficiency.

Let's examine the nature and the role of each of these cost drivers.

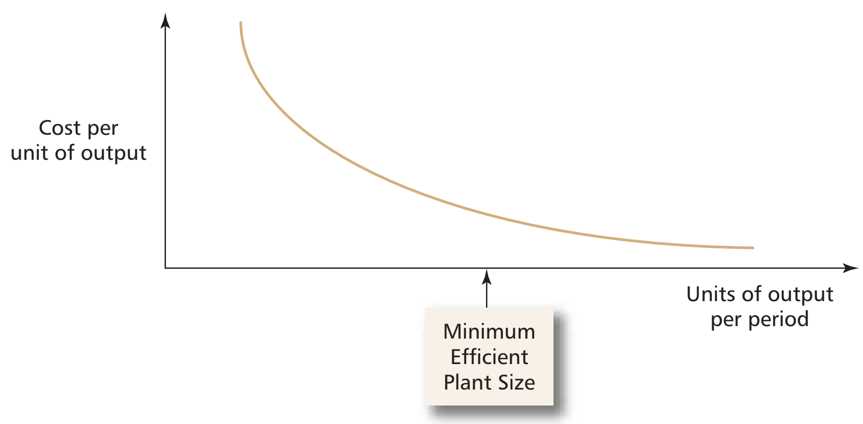
Economies of Scale

The predominance of large corporations in most manufacturing and service industries is a consequence of economies of scale. Economies of scale exist wherever proportionate increases in the amounts of inputs employed in a production process result in lower unit costs. Economies of scale have been conventionally associated with manufacturing. Figure 8.2 shows a typical relationship between unit cost and plant capacity. The point at which most scale economies are exploited is the Minimum Efficiency Plant Size (MEPS). Scale economies are also important in nonmanufacturing operations such as purchasing, R&D, distribution, and advertising.

Scale economies arise from three principal sources:

1. *Technical input–output relationships*. In many activities, increases in output do not require proportionate increases in input. A 10,000-barrel oil storage tank does not cost five times the cost of a 2,000-barrel tank. Similar volume-related economies exist in ships, trucks, and steel and petrochemical plants.
2. *Indivisibilities*. Many resources and activities are "lumpy" – they are unavailable in small sizes. Hence, they offer economies of scale, as firms are able to spread the costs of these items over larger volumes of output. A national TV advertising campaign or a research program into fuel cell technology will cost much the same whether it is being undertaken by Toyota

FIGURE 8.2 The long-run average cost curve for a plant



or Daihatsu. However, the costs as a percentage of sales will be much lower for Toyota because it has almost 20 times the sales of Daihatsu.

3 *Specialization*. Increased scale permits greater task specialization that is manifest in greater *division of labor*. Mass production – whether in Adam Smith's pin factory or Henry Ford's auto plants (see Chapter 6) – involves breaking down the production process into separate tasks performed by specialized workers using specialized equipment. Specialization promotes learning, avoids time loss from switching activities, and assists in mechanization and automation. Similar economies are important in knowledge-intensive industries such as investment banking, management consulting, and design engineering, where large firms are able to offer specialized expertise across a broad range of know-how.

Scale Economies and Industry Concentration Scale economies are a key determinant of an industry's level of concentration (the proportion of industry output accounted for by the largest firms). However, the critical scale advantages of large companies are seldom in production. In packaged consumer goods – cigarettes, household detergents, beer, and soft drinks – economies of scale in marketing are the key factor causing world markets to be dominated by a few giant companies. Advertising is a key indivisibility: a 60-second TV commercial can cost over $5 million to produce, but the real cost is in showing it – Sony's launch of its PlayStation 3 will incur advertising costs of about half a billion dollars. Figure 8.3 shows the relationship between sales volume and average advertising costs for different brands of soft drinks.

Consolidation in the world car industry has been driven by the huge costs associated with new model development (see Table 8.1). Small and medium-sized auto companies have been acquired by larger rivals simply because they lacked the necessary volume over which to amortize the costs of developing new models. Thus, VW acquired Skoda, Seat, and Rolls Royce, while Ford acquired Jaguar, Mazda, Land Rover, and Volvo. To survive, smaller auto producers must license technology and designs from their bigger competitors.[1]

FIGURE 8.3 Economies of scale in advertising: US soft drinks

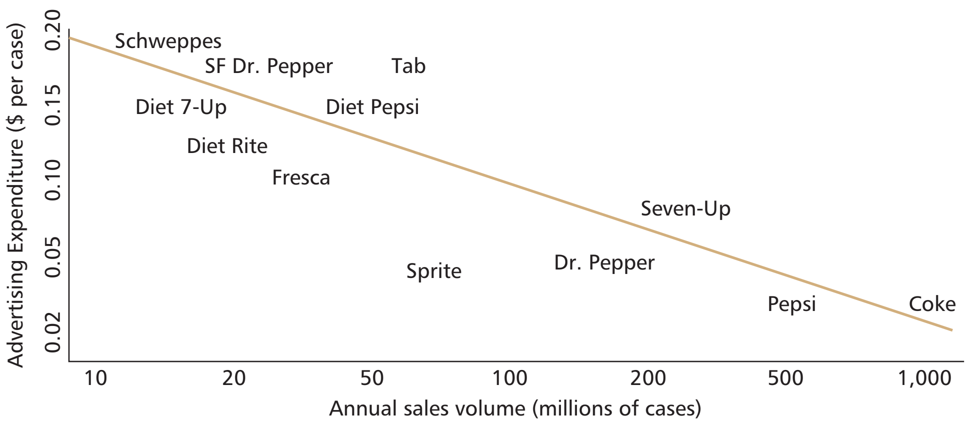


TABLE 8.1 The Development Cost (Including Plant and Tooling) of New Automobile Models

Model	Estimated development cost
Ford Mondeo/Contour	$6 billion
GM Saturn	$5 billion
Ford Taurus (1996 model)	$2.8 billion
Ford Escort (new model, 1996)	$2 billion
Renault Clio (1999 model)	$1.3 billion
Chrysler Neon	$1.3 billion
Honda Accord (1997 model)	$0.6 billion
BMW Mini	$0.5 billion
Rolls Royce Phantom (2003 model)	$0.3 billion

SOURCE: R. M. GRANT, "DAIMLERCHRYSLER AND THE WORLD AUTOMOBILE INDUSTRY," IN GRANT AND NEUPERT (EDS), *CASES IN CONTEMPORARY STRATEGY ANALYSIS*, 3RD EDN (OXFORD: BLACKWELL PUBLISHING, 2003).

Similar scale economies exist in passenger aircraft production. The $18 billion development cost of the Airbus A380 Superjumbo will require sales of 400 planes to reach break-even.

Limits to Scale Economies Despite the prevalence of scale economies, small and medium-sized companies continue to survive and prosper in competition with much bigger rivals. In the automobile industry, the most profitable companies in recent years have been medium-sized producers such as Peugeot, Renault, and BMW. In US and European banking, smaller banks have consistently been more profitable on average than the big boys. The efficiency advantages of scale are offset by three factors: first, the ability of smaller companies to differentiate their offerings more effectively; second, the greater flexibility of smaller companies; third, the greater difficulty of achieving motivation and coordination in large units.[2]

Economies of Learning

The experience curve is based primarily on learning-by-doing on the part of individuals and organizations. Repetition develops both individual skills and organizational routines. In 1943 it took 40,000 labor-hours to build a Convair B-24 bomber. By 1945 it took only 8,000 hours.[3] The more complex a process or product, the greater the potential for learning. Learning curves are exceptionally steep in semiconductor fabrication. When IBM introduced 0.18 micron, copper-interconnector chips, yields increased from zero to over 50% within the first two months. LCD flat screens are notoriously difficult to manufacture – a single defective chip may render an entire screen useless. The dominant position of Sharp and Samsung in flat screens is primarily a result of volume-based learning resulting in exceptionally high yields.[4] Learning occurs both at the individual level through improvements in dexterity and problem solving, and at the group level through the development and refinement of organizational routines.[5]

Process Technology and Process Design

For most goods and services, alternative process technologies exist. A process is technically superior to another when, for each unit of output, it uses less of one input without using more of any other input. Where a production method uses more of some inputs but less of others, then cost efficiency depends on the relative prices of the inputs. Hence, the assembly of desktop PCs, Dell's Palmer North 2 plant in Austin, Texas is highly automated, while its two plants in Xiamen, China (where wages are about 90% lower) are much more labor intensive.

New process technology may radically reduce costs. Pilkington's float glass process gave it (and its licensees) an unassailable cost advantage in glass production. Ford's moving assembly line reduced the time taken to assemble a Model T from 106 hours to six hours between 1912 and 1913.

When process innovation is embodied in new capital equipment, diffusion is likely to be rapid. However, the full benefits of new processes typically require system-wide changes in job design, employee incentives, product design, organizational structure, and management controls.[6] Between 1979 and 1986, General Motors spent $40 billion on new process technology with the goal of becoming the world's most efficient manufacturer of automobiles. Yet, in the absence of fundamental changes in organization and management, the productivity gains were meager. After a tour of Cadillac's state-of-the-art Hamtramck plant in Detroit, Toyota chairman Eiji Toyoda told a colleague, "It would have been embarrassing to comment on it."[7] By contrast, Toyota, Nucor, Dell Computer, McDonald's, and Wal-Mart have established cost leadership through adapting their organizations and human resource management to the requirements of their new process technologies.

Indeed, the greatest productivity gains from process innovation typically are the result of organizational improvements rather than technological innovation and new hardware. The central components of Toyota's system of lean production are just-in-time scheduling, total quality management, continuous improvement (*kaisan*), teamworking, job flexibility, and supplier partnerships rather than robotics or IT.[8] Harley-Davidson's gains in productivity during the late 1980s and early 1990s resulted from reorganizing its production processes, human resource management, and control systems, but with limited investment in automation and new manufacturing hardware.[9]

Business Process Reengineering During the 1990s, recognition that the redesign of operational processes could achieve substantial efficiency gains stimulated a surge of interest in a new management tool called *business process reengineering* (BPR). "Reengineering gurus" Michael Hammer and James Champy defined BPR as:

> *the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical contemporary measures of performance, such as cost, quality, service, and speed.*[10]

BPR recognizes that production and commercial processes involve complex interactions among many individuals and evolve over time with little conscious or consistent direction. With information technology, the temptation is to automate existing processes – "paving over cowpaths," as Michael Hammer calls it.[11] The key is to detach from the way in which a process is currently organized and to begin with the question: "If we were starting afresh, how would we design this process?" Hammer and Champy point to the existence of a set of "commonalities, recurring themes, or characteristics" that can guide BPR. These include:

- Combining several jobs into one.
- Allowing workers to make decisions.

- Performing the steps of a process in a natural order.
- Recognizing that processes have multiple versions and designing processes to take account of different situations.
- Performing processes where it makes the most sense, e.g., if the accounting department needs pencils, it is probably cheaper for such a small order to be purchased directly from the office equipment store along the block than to be ordered via the firm's purchasing department.
- Reducing checks and controls to the point where they make economic sense.
- Minimizing reconciliation.
- Appointing a case manager to provide a single point of contact at the interface between processes.
- Reconciling centralization with decentralization in process design – e.g., via a shared database, decentralized decisions can be made while permitting overall coordination simply through information sharing.

BPR has resulted in major gains in efficiency, quality, and speed (see Strategy Capsule 8.2), but in many instances has produced disappointing results. One of the major realizations to emerge from BPR is that most business processes are complex. To redesign a process one must first understand it. Process mapping exercises reveal that even seemingly simple business processes, such as the procurement of office supplies, involve complex and sophisticated systems of interactions among a number of organizational members. As we noted in Chapter 5, many organizational routines operate without any single person fully understanding the mechanism. Hammer and Champy's recommendation to "obliterate" existing processes and start with a "clean sheet of paper" runs the risk of destroying organizational capabilities that have been nurtured ever a long period of time.

Product Design

Design-for-manufacture – designing products for ease of production rather than simply for functionality and esthetics – can offer substantial cost savings, especially when linked to the introduction of new process technology.

- Volkswagen cut product development and component costs by redesigning its 30+ different models around just four separate platforms. The VW Beetle, Audi TT, Golf, and Audi A3, together with several Seat and Skoda models, all share a single platform.
- The IBM "Proprinter," one of the most successful computer printers of the 1980s, owed its low costs (and reliability) to an innovative design that:
  - reduced the number of parts from 150, found in the typical PC printer, to 60;
  - designed the printer in layers so that robots could build it from the bottom up;
  - eliminated all screws, springs, and other fasteners that required human insertion and adjustment and replaced them with molded plastic components that clipped together.[12]

STRATEGY CAPSULE 8.2

Process Reengineering at IBM Credit

IBM Credit provides credit to customers of IBM for the purchase of IBM hardware and software. Under the old system, five stages were involved:

1. The IBM salesperson telephoned a request for financing. The request was logged on a piece of paper.
2. The request was sent to the Credit Department where it was logged onto a computer and the customer's creditworthiness was checked. The results of the credit check were written on a form and passed to the Business Practices Department.
3. There the standard loan covenant would be modified to meet the terms of customer loan.
4. The request was passed to the pricer who determined the appropriate interest rate.
5. The clerical group took all the information and prepared a quote letter, which was sent to the salesperson.

Because the process took an average of six days, it resulted in a number of lost sales and delayed the sales staff in finalizing deals. After many efforts to improve the process, two managers undertook an experiment. They took a financing request and walked it around through all five steps. The process took 90 minutes!

On this basis, a fundamental redesign of the credit approval process was achieved. The change was replacing the specialists (credit checkers, pricers, and so on) with generalists who undertook all five processes. Only where the request was nonstandard or unusually complex were specialists called in. The basic problem was that the system had been designed for the most complex credit requests that IBM received, whereas in the vast majority of cases no specialist judgment was called for – simply clerical work involving looking up credit ratings, plugging numbers into standard formulae, etc.

The result was that credit requests are processed in four hours compared to six days, total employees were reduced slightly, while the total number of deals increased one hundred times.

Source: Adapted from M. Hammer and J. Champy, *Reengineering the Corporation: A Manifesto for Business Revolution* (New York: HarperBusiness, 1993): 36–9.

- Service offerings too can be designed for ease and efficiency of production. Motel 6, cost leader in US budget motels, carefully designs its product to keep operating costs low. Its motels occupy low-cost, out-of-town locations, it uses standard motel designs, it avoids facilities such as pools and restaurants, and it designs rooms to facilitate easy cleaning and low maintenance.

Capacity Utilization

Over the short and medium term, plant capacity is more or less fixed, and variations in output cause capacity utilization to rise or fall. Underutilization raises unit costs because fixed costs must be spread over fewer units of production. In businesses where virtually all costs are fixed (e.g., airlines, theme parks), profitability is highly sensitive to shortfalls in demand. During periods of peak demand, output may be pushed beyond the normal full-capacity operation. As Boeing discovered in 1997 and then in 2006, pushing output beyond capacity operation increases unit costs due to overtime pay, premiums for night and weekend shifts, increased defects, and higher maintenance costs.

In cyclical industries, the ability to speedily adjust capacity to downturns in demand can be a major source of cost advantage. During the 2001–2 stock market slump, the online brokerage companies that remained profitable were those that adjusted their operations to reduced transactions. Critical to effective adjustment is the ability to distinguish *cyclical* overcapacity – common to all cyclical industries, from semiconductors and construction to hotels and railroads – from the *structural* overcapacity that affects automobiles, gasoline retailing, and the US hospital industry.[13]

Input Costs

The firms in an industry do not necessarily pay the same price for identical inputs. There are several sources of lower input costs:

- *Locational differences in input prices*. The prices of inputs may vary between locations, the most important being differences in wage rates from one country to another. In the US, software engineers earned an average of $82,000 in 2005. In India the average was $24,000. In less-skilled occupations, differentials are much wider: in Suzhou, China, workers assembling iPods and laptop computers for Asustek earned $54 a month in 2006.[14]
- *Ownership of low-cost sources of supply*. In raw material-intensive industries, ownership or access to low-cost sources can offer crucial cost advantage. In oil and gas, finding and development costs for the three "supermajors" (Exxon Mobil, Royal Dutch Shell, and BP) were over $9 per barrel in 2005; for Saudi Aramco they were under $2.
- *Nonunion labor*. Where employment costs account for a major part of total costs, cost leaders are often the firms that have avoided unionization. In the US airline industry, nonunion Jet Blue had average salary and benefit cost per employee of $50,700 in 2005 compared with $70,200 for United (80% unionized).
- *Bargaining power*. Where bought-in products are a major cost item, differences in buying power among the firms in an industry can be an important source of cost advantage.[15] Wal-Mart's UK entry (with its acquisition of Asda) was greeted with dismay by British retailers – they recognized that Wal-Mart would be able to use its massive bargaining power to extract additional discounts from Asda's suppliers, which it could use to fuel aggressive price competition.

Residual Efficiency

In many industries, the basic cost drivers – scale, technology, product and process design, input costs, and capacity utilization – fail to provide a complete explanation for why one firm in an industry has lower unit costs than a competitor. Even after taking all these cost drivers into account, unit cost differences between firms remain. These residual efficiencies relate to the extent to which the firm approaches its efficiency frontier of optimal operation. Residual efficiency depends on the firm's ability to eliminate "organizational slack"[16] or "X-inefficiency"[17] – surplus costs that keep the firm from maximum-efficiency operation. These costs are often referred to as "organizational fat" and build up unconsciously as a result of employees – both in management and on the shop floor – maintaining some margin of slack in preference to the rigors of operating at maximum efficiency.

Eliminating excess costs is difficult. It may take a shock to a company's very survival to provide the impetus for rooting out institutionalized inefficiencies. When faced with bankruptcy or a precipitous fall in profitability, companies can demonstrate a remarkable capacity for paring costs. For example, as part of the rescue of Nissan Motor by Renault, the ensuing cost cutting implemented by turnaround CEO Carlos Ghosn cut Nissan's operating costs by 20% during his first year.[18]

In the absence of a threat to survival, high levels of residual efficiency are typically the result of an organizational culture and management style that are intolerant toward all manifestations of unnecessary costs. At Wal-Mart, for example, parsimony and frugality are virtues that take on a near-religious significance.

Using the Value Chain to Analyze Costs

To analyze costs and make recommendations for building cost advantage, the company or even the business unit is too big a level for us to work at. As we saw in Chapter 5, every business may be viewed as a chain of activities. In most value chains each activity has a distinct cost structure determined by different cost drivers. Analyzing costs requires disaggregating the firm's value chain to identify:

- The relative importance of each activity with respect to total cost.
- The cost drivers for each activity and the comparative efficiency with which the firm performs each activity.
- How costs in one activity influence costs in another.
- Which activities should be undertaken within the firm and which activities should be outsourced.

The Principal Stages of Value Chain Analysis

A value chain analysis of a firm's cost position comprises the following stages:

1 *Disaggregate the firm into separate activities*. Determining the appropriate value chain activities is a matter of judgment. It requires understanding the chain of processes involved in the transformation of inputs into output and its delivery to the customer. Very often, the firm's own divisional and departmental structure is a useful guide. Key considerations are:
   - the separateness of one activity from another;
   - the importance of an activity;
   - the dissimilarity of activities in terms of cost drivers;

- the extent to which there are differences in the way competitors perform the particular activity.

2 *Establish the relative importance of different activities in the total cost of the product*. Our analysis needs to focus on the activities that are the major sources of cost. In disaggregating costs, Michael Porter suggests the detailed assignment of operating costs and assets to each value activity. Though the adoption of activity-based costing has made such cost data more available, detailed cost allocation can be a major exercise.[19] Even without such detailed cost data, it is usually possible to identify the critical activities, establish which activities are performed relatively efficiently or inefficiently, identify cost drivers, and offer recommendations.

3 *Compare costs by activity*. To establish which activities the firm performs relatively efficiently and which it does not, benchmark unit costs for each activity against those of competitors.

4 *Identify cost drivers*. For each activity, what factors determine the level of cost relative to other firms? For some activities, cost drivers are evident simply from the nature of the activity and the composition of costs. For capital-intensive activities such as the operation of a body press in an auto plant, the principal factors are likely to be capital equipment costs, weekly production volume, and downtime between changes of dies. For labor-intensive assembly activities, critical issues are wage rates, speed of work, and defect rates.

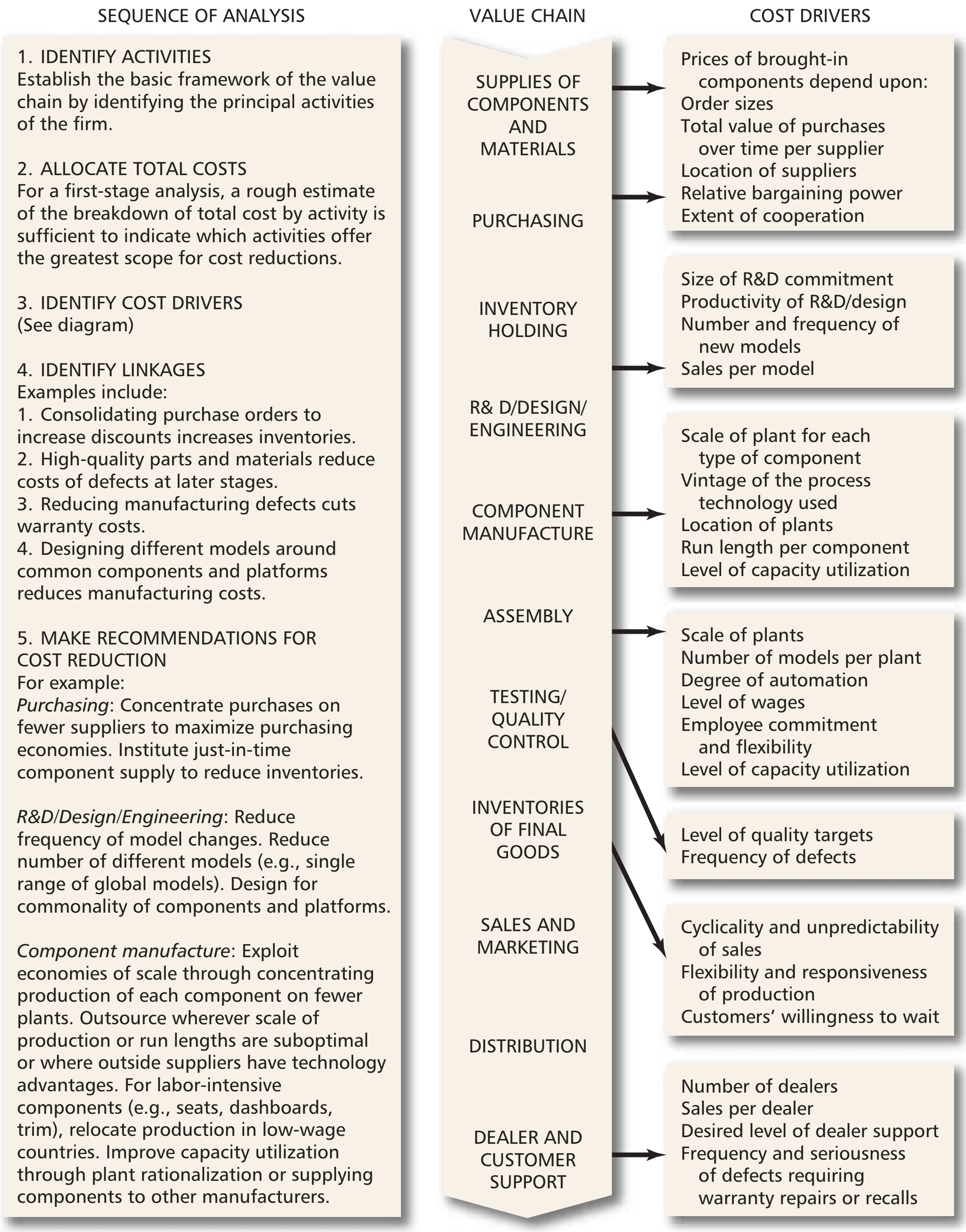
5 *Identify linkages*. The costs of one activity may be determined, in part, by the way in which other activities are performed. Xerox discovered that its high service costs relative to competitors reflected the complexity of design of its copiers, which required 30 different interrelated adjustments.

6 *Identify opportunities for reducing costs*. By identifying areas of comparative inefficiency and the cost drivers for each, opportunities for cost reduction become evident. For example:

- If scale economies are a key cost driver, can volume be increased? One feature of Caterpillar's cost-reduction strategy was to broaden its model range and begin selling diesel engines to other vehicle manufacturers in order to expand its sales base.
- Where wage costs are the issue, can wages be reduced either directly or by relocating production?
- If a certain activity cannot be performed efficiently within the firm, can it be outsourced?

Figure 8.4 shows how the application of the value chain to automobile manufacture can yield suggestions for possible cost reductions.

FIGURE 8.4 Using the value chain in cost analysis: an automobile manufacturer



Summary

Cost efficiency may no longer be a guarantee of profitability in today's fast-changing markets, but in almost all industries it is a prerequisite for success. In industries where competition has always been primarily price based – steel, textiles, and mortgage loans – increased intensity of competition requires relentless cost-reduction efforts. In industries where price competition was once muted – airlines, banking, and electrical power – firms have been forced to reconcile the pursuit of innovation, differentiation, and service quality with vigorous cost reduction.

The foundation for a cost-reduction strategy must be an understanding of the determinants of a company's costs. The principal message of this chapter is the need to look behind cost accounting data and beyond simplistic approaches to the determinants of cost efficiency, and to analyze the factors that drive relative unit costs in each of the firm's activities in a systematic and comprehensive manner.

Increasingly, approaches to cost efficiency are less about incremental efficiencies, and more about fundamentally rethinking the activities undertaken by the firm and the ways in which it organizes them. By focusing on those activities in which the firm possesses a cost advantage and outsourcing others, and by extensively reengineering manufacturing and administrative processes, firms have succeeded in achieving dramatic reductions in operating costs.

Given multiple drivers of relative cost, cost management implies multiple initiatives at different organizational levels. Careful analysis of existing activities relative to competitors can pinpoint cost-reduction opportunities by lowering input costs, accessing scale economies, and better utilizing capacity. At the same time, the firm must seek opportunities for innovation and process redesign to exploit new sources of dynamic efficiency.

Self-Study Questions

1. A number of industries have experienced rapidly increasing global concentration in recent years: commercial aircraft (led by Boeing and Airbus), steel (led by Mittal Steel), beer (led by SAB-Miller, Anheuser Busch, and Heineken), investment banking (led by Citigroup, Goldman Sachs, UBS, and Morgan Stanley), defense equipment (led by Lockheed Martin and Northrop Grumman), and delivery services (led by UPS, Federal Express, and Deutsche Post/DHL). For each industry, are economies of scale the major rationale for increasing concentration? If so, identify the sources of economies of scale. If not, how can increasing global concentration be explained?
2. In Strategy Capsule 2.3 (Chapter 2), we observed that Ford's profitability was low primarily because its costs were high. Using the value chain shown in Figure 8.4 and what you know about Ford (including the information in Strategy Capsule 2.3), what suggestions would you offer as to how Ford might lower its costs of producing cars?
3. To what extent are the seven cost drivers shown in Figure 8.1 relevant in analyzing the costs per student at your business school? What recommendations would you make to your dean for improving the cost efficiency of the business school?

Notes

1 To be more precise, the economies of amortizing product development costs are *economies of volume* rather than *economies of scale*. The product development cost per unit depends on the total volume of production over the life of the model.
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