MODERN COMPETITIVE ANALYSIS

SHARON M. OSTER

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To my mother
Karin Oster
for many reasons

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PREFACE

This is a book about competitive strategy by an economist. Thus the book's organization reflects that orientation. I believe that some of the fundamental ideas in microeconomics are very important in understanding strategic planning. But I have also learned while exploring the issues of organizational strategy that much exists outside of economics, and that material too has found its way into this book.

Three overarching themes are carried through the text. First, following the economic tradition, I focus quite heavily on the *competitive* nature of competitive strategy. Strategy is developed in an environment in which organizations are in continuous contact with one another and in which the results of organizational choices depend on what other people do. In this book, we spend a good deal of time looking at how interactive forces inside and outside the market affect the strategic choices available to organizations and the outcomes that result from those choices.

A second theme of this book is the importance of change. A strategy is a plan to get us from here to there. Change is essential to movement, and we can thus think about strategic planning as a way of creating and managing change. We will deal in some detail with the kinds of opportunities created by the changing nature of the market.

A final theme is that the choices involved in developing a strategy are inevitably made in the context of limited information and market frictions. Strategic planning is a way of informing the choice-making process of an organization. Decisions are typically made both in large organizations and in small for-profit and nonprofit organizations without full knowledge of all the relevant facts. Timeliness and human limitations make it so. Indeed, these information holes create interesting possibilities for managers and make the management process both more interesting and less certain. Strategic planning is a way of informing and improving the choices made in organizations, but such planning must recognize that uncertainties will inevitably remain.

Although the economics perspective is manifest throughout, the text also tries to move beyond economics into marketing, finance, organizational behavior, and other applied management fields, for I believe that work in these areas is vital to the art of strategic planning. Only the reader can judge how successfully these diverse fields have been represented in this book.

This book grows out of a course on competitive strategy that I began teaching at Yale in 1982, a one-semester, second-year course. But the structure of courses in which material on competitive strategy is taught varies a good deal across institutions. Here too we have seen evolution over time. As a result, the book might be used at different levels in other schools. The material has also been used at Yale for an advanced undergraduate seminar in economics. Finally, we have used some of the chapters in the Yale Executive Program, a program designed for upper-level managers interested in broadening their backgrounds.

When I teach a course using chapters from this book, I usually use cases as well. I believe, as I think do most people in the field, that cases are a helpful way to see both the lessons and limits of theoretical ideas. The appendix lists cases that I have used in conjunction with various chapters of the book. Many are Harvard Business School cases and are available from the HBS Case office. Others are cases that have been developed at the Yale School of Management and are available from me on request. Of course, these are only a sampling of the cases that might be used.

Though I wrote the book for a course I was teaching and hoped that it would be useful in similar courses in other institutions, I see no reason the book cannot be read profitably by practicing managers. The tools of competitive analysis in the book should be of significant help to them in solving the strategic problems they face.

I have benefited from the comments and criticisms of many people as this book has progressed. Clay Alderfer, John Cox, Peter Cramton, Joel Demski, Ray Fair, Stan Garstka, Michael Levine, Paul Milgrom, Sridhar Moorthy, John Scott, Subrata Sen, Tom Wyman, and Victor Vroom all read versions of portions of the manuscript. Several classes of Yale School of Management students persevered through early versions of the material and lent both tolerance and thoughtful observations. A number of practitioners shared their experiences with me to enrich the examples in the book. My editor, Herbert Addison, worked for clarity in my prose. Christine Anastasion worked tirelessly through many drafts of the manuscript, with an eye toward the logic of the final product as well as its form. Finally, I wish to give a special thanks to Burt Malkiel who, as Dean of the Yale School of Management from 1981 to 1987, encouraged me to teach in the area of competitive strategy and thus set me on the road to producing this book.

I have learned a great deal in writing this book and enjoyed the process enormously. I hope the reader will feel the same way.

New Haven
January 1989

S.M.O.

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MODERN COMPETITIVE ANALYSIS

1

Introduction and Overview

The American industrial landscape is marked by incredible variety. Multidivisional organizations with sales of hundreds of millions of dollars coexist, often even in the same industry, with family-owned firms with sales of less than $1 million. In any given year, some firms thrive, earning high profits and experiencing rapid growth in their sales. Other firms languish, sometimes suffering losses and growing not at all. Still other organizations operate deliberately as nonprofits. In any given industry, entry of some firms may be accompanied by the exit of others. Indeed, whole industries spring up as other industries decline and die.

The variety of the landscape is further intensified by a complex and sometimes bewildering array of business strategies. One firm may spend a large fraction of its profits on research, while another is content to imitate the innovations of others. One firm produces a wide product range, while a second mass-produces one variety of its good. The Coca-Cola company, for example, has a wide and expanding range of soft-drink brands, while Dr. Pepper has remained almost a one-brand firm. In another industry, relief services, Oxfam focuses all of its funds on long-term development efforts in recipient countries, while a second well-known agency, the Red Cross, focuses almost entirely on short-term relief efforts. The steel industry provides another example in which old-line industry participants are for the most part well integrated into all facets of the business, while many of the new entrants operate exclusively in the final product end. Throughout the economy, we see evidence of great diversity in business strategy.

In short, there are large differences both in the results achieved by organizations and in the ways those organizations operate. Of course, some of the differences are a matter of serendipity: New product development is sometimes more a function of luck than of concerted research effort, and managerial personalities may determine corporate behavior—and hence results—in unforeseen ways. Increasingly, however, a substantial portion of the behavior engaged in by organizations is the result of deliberate *strategic planning*. Moreover, in large measure the results experienced by those organizations can be explained by the quality of that planning and the basic economic conditions under which those organizations operate. A major theme of this text is that an understanding of economic and managerial principles can make a striking difference in the quality of an organization's strategic planning and in the performance of that organization.

An organization's strategic plan is its plan for the allocation of its resources. Planning is a way to articulate a strategy for dealing with change in the environment and, indeed, for creating change in that environment. At the heart of a strategic plan is a set of choices confronted by the organization. Fundamentally, *a strategy is a commitment to undertake one set of actions rather than another.* But it is precisely the question of resource allocation and trade-offs that lies at the heart of economics. In part this helps to explain the new interest in the study and practice of economics in numerous organizations. Economics is a central ingredient in strategic planning, though by no means the only ingredient.

There has been a great deal of recent work in economics, specifically in industrial organization, that is relevant to managerial decision making, and this text refers to some of that work to illuminate situations faced by modern managers. For example, though many questions remain, considerable progress has been made in understanding why some firms earn high profits, while others fail. Even more progress has been made in understanding why some industries earn high profits on average, while others do less well. Recent work on **evolutionary economics** has provided us with considerable insight into the ways in which organizations adapt to changes in their environments and how the selection process works in a market place. Recently, we've begun to understand more fully why some organizations are structured in one way, while others seem to thrive with quite a different structure. **Transactions-cost economics** has given us a new way of understanding organizational structure and its functions, with its view that contractual relations within and among firms are themselves the result of efficiency-seeking behavior in a world of limited information. And we've begun to see the ways in which the techniques of decision theory and the models of organizational behavior may be helpful in structuring managerial problem solving. Finally, work in the subfield of game theory has proved quite fruitful in forecasting and diagnosing the intricacies of interactions among organizations, ranging from warring countries to feuding firms. In this text, I pull together work in all of these areas.

The strategic-planning process is an experiment in directed evolution. The CEO of Emhart, a $2.5 billion Connecticut metal-products firm, defines strategic planning as the "management of change."[1] And, indeed, change is fundamental to the planning process. In its plan, an organization analyzes its current position and shape, looks at the world around it—including the other similar species out there—and tries to formulate a

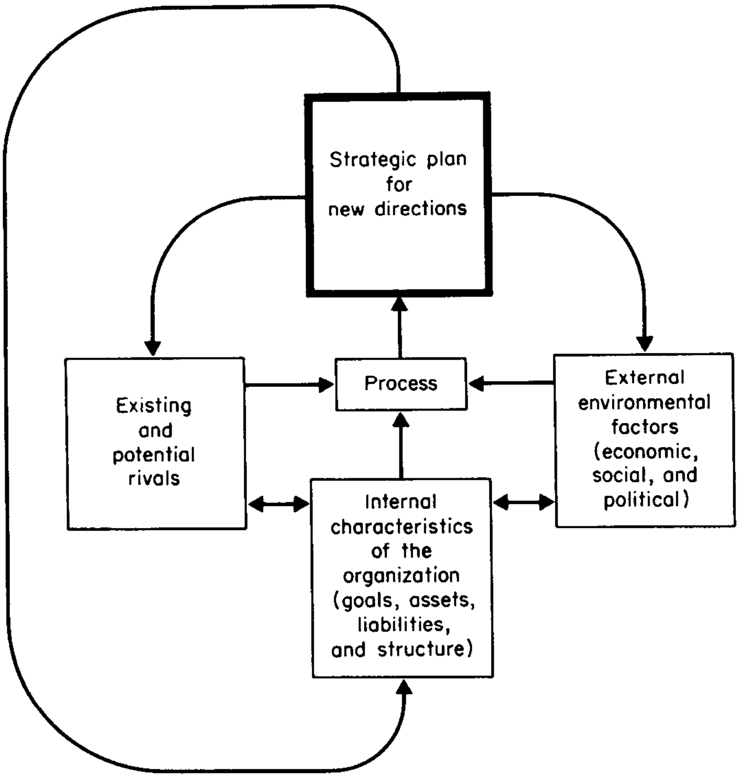
Strategic plan
for
new directions
Process
Existing
and
potential
rivals
External
environmental
factors
(economic,
social, and
political)
Internal
characteristics
of the
organization
(goals, assets,
liabilities,
and structure)

Figure 1.1 Forces contributing to the strategic plan.

plan to enable it to move in a new and better direction. Such planning not only provides a way to manage change, but a way to *create* change.

Figure 1.1 is a schematic of the ingredients in this process of planning for new directions.

We begin, in the lower box, with the organization itself. At the start of a planning process the organization has a set of assets and liabilities. Some are carried on the balance sheet, others are less tangible but no less important. The firm has some productive facilities, a brand reputation, a distribution network, and so on. The organization also has a structure and some goals. Some organizations are highly formal; others emphasize participatory management. Some organizations stress short-run profits; others focus more heavily on growth. This set of internal characteristics will determine, in part, the options available to, and attractive to, the firm.

All organizations operate within a broader community, as represented in the right-hand box of Figure 1.1. The laws and customs of a society will help to determine the viability of new strategic directions, as will more mundane factors like the overall level of economic activity in a society. Firms are governed by antitrust laws and labor laws. They are af-

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fected by demographics and educational policy. But organizations themselves can sometimes influence the external environment in profound ways. Firms influence labor laws and trade policy, for example. So we have drawn a two-headed arrow between the firm and its environment in the figure.

One very important part of an organization's environment is its rivals, real and potential. In Figure 1.1 we have isolated this component to highlight its importance. Here, too, the arrow is two headed: A proliferation of rivals certainly will influence a firm's ability to enter a new area, but at the same time new strategic actions of that firm might influence the number and condition of those rivals.

Based on these three ingredients—an internal look at the firm, an analysis of its environment, and a detailed consideration of rivals—the organization can begin to put together a plan to move in a new direction. And, thus, in the central box of the schematic we have placed the planning process. This process varies considerably across organizations. At some firms, strategic planning is done by the CEO alone without any strategic planning group. This was the case at Polaroid, for example, before 1982. In other organizations, strategic planning is carried out by a fairly large group of staff people, abetted by teams of consultants. Xerox works in this way. In some organizations planning involves many forms and lots of paper work. In other places, planning offices resemble war rooms at the Pentagon. But no matter where in the organization the planning process is located or how it is organized, planners should look at the elements pictured in the schematic.

Any new plan, indeed any new process, potentially alters each of the various boxes in the exhibit, and thus gives the organization a new strategic planning problem for the next round. Planning—done well—creates the momentum for change. Indeed, improving the capacity of an organization to react quickly to a changing environment was early suggested as one of the central advantages of a planning process.[2] One role of the planning process is to organize equipment to be used when fires need to be fought. Indeed, the firms which seem to rely most heavily on strategic planning are those with vulnerable core technologies.[3]

Improving organizational response time is one objective of the planning process. A second function of planning is to integrate the organization.[4] In successful organizations, managers have some reasonably well-articulated vision of the future direction of the organization. Sometimes that vision is very concrete. Seymour Cray, the founder of Cray Research, the leading manufacturer of the supercomputer, articulated his goal with precision: "The purpose of my new company is to design and build a larger, more powerful computer than anyone now has."[5] In other organizations, future direction is less well specified. In either case, the planning process can provide both input into the development of a vision and a way of disseminating that vision throughout the organization.

The strategic -planning process also has the potential to assist the control function of an organization.[6] As the complexity of the modern organization increases, this function takes on a more important role. Decision making in large and small organizations inevitably occurs with limited information. This increases the importance of the control functions in a firm. But control of the large organization is often not lodged in the owners of that organization, making these functions both more difficult and more important. Here, too, planning may be of help, as it allows us to monitor functions and improve incentives of various members of the organization in its uncertain environment. Reginald Jones, the CEO of General Electric in the heyday of its strategic planning effort, commented that the G.E. planning system provided a "strong discipline for differentiating the allocation of resources."[7] Control across areas was key to the planning process in this large diversified organization.

This text has four broad sections to reflect the ingredients in a dynamic planning process. Part I focuses attention on the environment faced by an organization, including the characteristics of the industry of which it is a part. In the U.S. economy, some industries appear to earn relatively high profits over substantial periods of time; other industries limp along year after year. What accounts for these differences among industries? The evidence is examined on the performance of various industries, and some theory is developed to explain the persistence of these differences among industries. Part I also considers the effect of industry-wide forces on organizational strategy. Material in this section is drawn primarily from the discipline of economics. Chapters 2 through 4 take a careful look at what has traditionally been called **environmental analysis** in the strategic planning literature.

Part II narrows in on the organization itself. Within a particular industry environment, some firms do well and others poorly. Is this a matter of chance alone, or are there some systematic forces that determine firm performance? How do we tell if one organization is performing well relative to a second? What kind of an economic accounting can we make of the assets and liabilities of an organization? Does strategy play a role? Why are there differences in the structure of organizations, and what difference, if any, does management structure make? How does an organization decide issues of scope? These are difficult questions, and Part II draws on a wide range of work in economics, sociology, psychology, and finance to provide some of the answers. In these chapters, the **implementation** questions of strategic management are treated.

In Part III, I consider the relationship among organizations operating within an industry. In some industries aggressive price competition is rare, and marketing is the prime competitive arena. In other industries, price wars are common. In some industries, research and development is often undertaken with joint ventures, and patents are commonly cross-licensed. In other industries, R&D is closely guarded and the subject of much litigation. How do we explain these differences? Is it the personality of the players that makes most of the difference among industries, or is it economic factors? Or a bit of both? Can we systematically learn anything about competitor behavior to help make it more predictable? Part III concentrates heavily on some of the recent fascinating work in the area of game theory as applied to management.

Part IV deals with the planning process. As I indicated earlier, organizations differ substantially in how they plan. Part IV describes some of these differences and looks at the way the principles we develop in the body of the text can also help us to understand differences in the planning process itself.

Throughout, many of the examples used are drawn from the corporate world. Others are taken from the nonprofit sector, and some from the public sector as well. Economics as a discipline has been as interested in the public side of organizations as it has in the private; so, too, has sociology. Many of the tools and ideas developed will be useful for the public manager as well as the private manager. In many ways, analyzing the strategic options of the Port Authority of New York is not so different from looking at the choices of Rouse, a private development corporation. Competition between the Whitney Museum and the Guggenheim over art masterpieces and funding can be as intense as the Pepsi–Coca-Cola soft-drink war. Differences, of course, exist as well, both in the kinds of objectives nonprofits and public-sector organizations have vis-à-vis their private counterparts, and in the opportunities they face. When the time comes, I will try to illustrate these differences as well.

The Dynamics of Industry Structure

Before going into the main body of the text, I want to look more closely at some themes to be developed in it. As we indicated in Figure 1.1, the planning process is intended to bring the possibilities of change to the front of the organizational consciousness. In part, the evolution over time of an organization results from its own efforts. In most industries, however, there are also general forces operating to affect the selection environment in which the organization operates. Different strategic issues will come to the foreground as an organization moves through various stages. The sources of opportunities for creating new value will also change over the life cycle of the market. We will use a stylized recital of a common path of industry evolution to set the stage for our organizational analysis and to highlight the theme of strategic interaction that will be carried throughout the text.

The early history of an industry or a product market is often characterized by considerable upheaval. Typically, as the industry progresses, more stability sets in: The number of new exits and entrants into the industry begins to slow, profit and growth rates stabilize, and so on. Indeed, the general pattern of industry evolution follows the path in Figure 1.2.

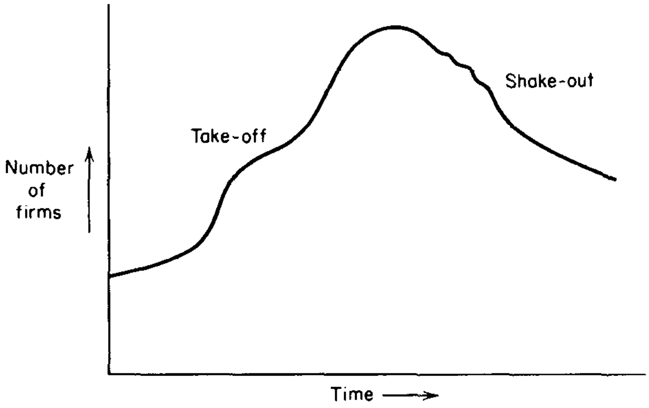

Figure 1.2 A typical industry.

The industry begins when a new product is introduced by a firm. Typically, the initial production capacity of the innovator is below what the market will support. Growth and profit opportunities in the new industry appear to be very attractive, and new entry occurs. This period is often marked by experimentation around issues of production technique and sometimes around product style. In this period of the industry's development, uncertainty is rampant and learning rapid. At this stage in development, there are substantial payoffs to fleetness and flexibility.

The attractive and exciting initial period is not, however, destined to last. In many industries, as shown in Figure 1.2, opportunities in the industry attract entry. In many cases, too many firms enter: Now firms find that there is more capacity than the market can profitably support. At this point, too, some firms turn out to have made production choices which, given demand conditions, are less costly than those of their rivals. Some product designs turn out to be superior to others. Such forces lead to a shake-out in a kind of Darwinian process of survival of the fittest in which prices fall and profit margins follow. Finally, stability sets in as only the most efficient firms survive.

This idealized pattern has occurred in a great many diverse industries, the automobile industry, for one.[8] Between 1900, when the automobile was first introduced, and 1910, demand for autos mushroomed. Demand exceeded the capacity of early producers, and new entrants were abundant. Between 1902 and 1909, 47 firms entered the market. By 1921 there were 88 auto firms in the U.S. This period in auto history was marked by a high failure rate and considerable experimentation, particularly in the production realm. By 1931, however, consolidation had occurred, with General Motors controlling about a third of industry sales. By this time, much of the early experimentation in the production area had fallen away, and production methods used by the various firms in the industry had become standardized.

A more recent example of the same pattern is provided by the market for smoke detectors. This market opened up in 1971. By the late 1970s it had grown to a $100 million per year business. In the early 1970s as many as 20 firms operated in the industry, and industry hopes for high growth and profits were high. In the 1980s only four firms remained in the industry, and profit rates had moderated considerably.

The general pattern of industry evolution shown in Figure 1.2 characterizes many diverse industries. But within this general pattern there are large differences among industries. Some new products compete from the outset with relatively close substitutes already in the market. Tylenol, for example, faced pricing pressure from aspirin even in its early stages. Smoke detectors faced few substitutes in the entry period. In some industries, the development of a new product is rapidly followed by large-scale entry, and the curve in the initial take-off period is quite steep. The smoke-detector industry is a good example of this pattern, as is the market for personal computers. In other industries, entry by new firms is quite slow. The copying industry is an excellent example of this pattern, with Xerox remaining almost alone in the industry for a considerable period. The instant-photography market similarly exhibited slow entry for a variety of reasons to be explored in this text.

Industries differ not only in how fast entry occurs, but also in how much entry we eventually see. In many industries, sufficient capacity will enter the industry to drive prices down and eliminate any extraordinary profit opportunities that existed early in the industry's history. Again, the smoke-detector industry is a relevant example. In the mid-1970s the price of detectors was $50; by the 1980s the price of the average smoke detector had fallen to $15, despite some overall rise in the general price level. While part of this price decrease undoubtedly reflected cost reductions associated with technical progress, most of the decrease simply reflected the pressure on margins caused by substantial entry. In other industries, while entry occurs and capacity grows, the new capacity is not sufficient to eliminate the high profits of the industry.

As a result of differences in the rate and magnitude of new entry, industries differ substantially in their profitability. One element in an organization's strategy is figuring out which industries are likely to be characterized by slow and difficult entry—and thus will yield favorable profit opportunities for it for a protracted period. In the next several chapters of this text, we concentrate on identifying industry-wide factors that influence profitability rates. This will be the central thrust of our **environmental analysis.** (Of course, identifying potentially profitable industries may be easier than actually entering them. We all know that being a star pitcher for the Mets is a lucrative profession, but few of us are credible entrants into that profession.) But identifying lucrative areas is at least a start.

Figure 1.2 shows the evolution of an industry as a whole. That evolutionary path has clear and substantial influences on the fortunes of the individual organizations within that industry. But industry-wide patterns do not tell the whole story. In a number of industries, the average performance of the industry is no better than the average of industries as a whole, but particular firms or groups of firms manage to do considerably better than average. In these instances, the high-performance firm or subgroup possesses something special and hard to imitate that allows it to outperform its rivals. Porter refers to such special assets as the firm's **competitive advantage.**[9] A firm's competitive advantages are those characteristics that allow it to do well even in the face of mediocre industry-wide performance and free entry into the industry as a whole. In many cases, superior performance in a market requires a complex package of mutually supporting **complementary assets.**[10] Often it is market frictions that allow advantages to be sustained over a long period of time. To some extent these advantages result from choices made by organizations. And, we recall, one of the fundamental jobs of the planning process is to inform the choice process.

The Connection Between Economics and Strategy: A Theme to Be Repeated

I have suggested that strategic planning is a way of creating and managing change. Ultimately the responsibility for developing a strategy belongs to the chief executive officer. In some organizations, strategic planning is done by the CEO without the support of a formal planning staff. In other organizations, plannning staffs not only exist but are quite powerful in the development of the corporate strategy. Even within particular organizations, the role of the planning group typically varies over time. Formal strategic planning has had a checkered history in many organizations. In the 1970s planning groups emerged at most major U.S. corporations. By the late 1970s, 75 percent of the Fortune 1000 firms used strategic planning methods.[11] These groups began with formidable agendas and high ambitions. Unfortunately, the early history of strategic planning at many large organizations rapidly degenerated into a formulaic mode as did some of the management literature. Firms *en masse* articulated and attempted to follow strategies like "Go for share," or "Sell off low-growth businesses," or "Acquire businesses in high-margin, high-growth areas" as a way to increase the value of their organizations. The results of trying to apply these rules were often disastrous, and in many organizations the strategic planners took the blame. People responsible for running operations soon learned that no magic formula existed for making money in corporate America. And in many organizations the formal planning function declined. More recently, we have seen a cautious rebuilding of planning groups in numerous organizations.

Interestingly, one of the fundamental principles of economics predicts and explains the failure of a slogan-following brand of strategy:

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