

Scanning the Environment

*I hold that man is in the
right who is most in
league with the future*

HENRY IBSEN

An organization is a creature of its environment. Its very survival and all of its perspectives, resources, problems, and opportunities are generated and conditioned by the environment. Thus, it is important for an organization to monitor the relevant changes taking place in its environment and formulate strategies to adapt to these changes. In other words, for an organization to survive and prosper, the strategist must master the challenges of the profoundly changing political, economic, technological, social, and regulatory environment. To achieve this broad perspective, the strategist needs to develop and implement a systematic approach to environmental scanning. As the rate and magnitude of change increase, this scanning activity must be intensified and directed by explicit definitions of purpose, scope, and focus. The efforts of businesses to cope with these problems are contributing to the development of systems for exploring alternatives with greater sensitivity to long-run implications. This emerging science has the promise of providing a better framework for maximizing opportunities and allocating resources in anticipation of environmental changes.

This chapter reviews the state of the art of environmental scanning and suggests a general approach that may be used by a marketing strategist. Specifically, the chapter discusses the criteria for determining the scope and focus of scanning, the procedure for examining the relevance of environmental trends, the techniques for evaluating the impact of an environmental trend on a particular product/market, and the linking of environmental trends and other “early warning signals” to strategic planning processes.

IMPORTANCE OF ENVIRONMENTAL SCANNING

Without taking into account relevant environmental influences, a company cannot expect to develop its strategy. It was the environmental influences emerging out of the energy crisis that were responsible for the popularity of smaller, more

fuel-efficient automobiles and that brought about the demise of less efficient rotary engines. It was the environmental influence of a coffee bean shortage and geometric price increases that spawned the “coffee-saver” modification in Mr. Coffee automatic drip coffee makers. Shopper and merchant complaints from an earlier era contributed to the virtual elimination of deposit bottles; recent pressures from environmental groups, however, have forced their return and have prompted companies to develop low-cost, recyclable plastic bottles.

Another environmental trend, Americans’ insatiable appetite for eating out (in 1990, restaurant sales accounted for \$0.44 of every \$1 spent on food; this number is expected to reach \$0.63 by the year 2000), worries food companies such as Kraft. In response, Kraft is trying to make cooking as convenient as eating out (e.g., by providing high-quality convenience foods) to win back food dollars.¹

The sad tales of companies that seemingly did everything right and yet lost competitive leadership as a result of technological change abound. Du Pont was beaten by Celanese when bias-ply tire cords changed from nylon to polyester. B.F. Goodrich was beaten by Michelin when the radial overtook the bias-ply tire. NCR wrote off \$139 million in electro-mechanical inventory and the equipment to make it when solid-state point-of-sale terminals entered the market. Xerox let Canon create the small-copier market. Bucyrus-Erie allowed Caterpillar and Deere to take over the mechanical excavator market. These companies lost even though they were low-cost producers. They lost even though they were close to their customers. They lost even though they were market leaders. They lost because they failed to make an effective transition from old to new technology.

In brief, business derives its existence from the environment. Thus, it should monitor its environment constructively. Business should scan the environment and incorporate the impact of environmental trends on the organization by continually reviewing the corporate strategy.

The underlying importance of environmental scanning is captured in Darwinian laws: (a) the environment is ever-changing, (b) organisms have the ability to adapt to a changing environment, and (c) organisms that do not adapt do not survive. We are indeed living in a rapidly changing world. Many things that we take for granted today were not even imagined in the 1960s. As we enter the next century, many more “wonders” will come to exist.

To survive and prosper in the midst of a changing environment, companies must stay at the forefront of changes affecting their industries. First, it must be recognized that all products and processes have performance limits and that the closer one comes to these limits the more expensive it becomes to squeeze out the next generation of performance improvements. Second, one must take all competition seriously. Normally, competitor analyses seem to implicitly assume that the most serious competitors are the ones with the largest resources. But in the context of taking advantage of environmental shifts, this assumption is frequently not adequate. Texas Instruments was a \$5- to \$10-million company in 1955 when it took on the mighty vacuum tube manufacturers—RCA, GE, Sylvania, and Westinghouse—and beat them with its semiconductor technology. Boeing was nearly bankrupt when it successfully introduced the commercial jet plane,

vanquishing larger and more financially secure Lockheed, McDonnell, and Douglas corporations.

Third, if the environmental change promises potential advantage, one must attack to win and attack even to play the game. Attack means gaining access to new technology, training people in its use, investing in capacity to use it, devising strategies to protect the position, and holding off on investments in mature lines. For example, IBM capitalized on the emerging personal computer market created by its competitor, Apple Computer. By becoming the low-cost producer, distributor, seller, and servicer of personal computers for business use, IBM took command of the marketplace in less than two years.

Fourth, the attack must begin early. The substitution of one product or process for another proceeds slowly and then predictably explodes. One cannot wait for the explosion to occur to react. There is simply not enough time. B.F. Goodrich lost 25 percentage points of market share to Michelin in four years. Texas Instruments passed RCA in sales of active electronic devices in five to six years.

Fifth, a close tie is needed between the CEO and the operating managers. Facing change means incorporating the environmental shifts in all aspects of the company's strategy.

WHAT SCANNING CAN ACCOMPLISH

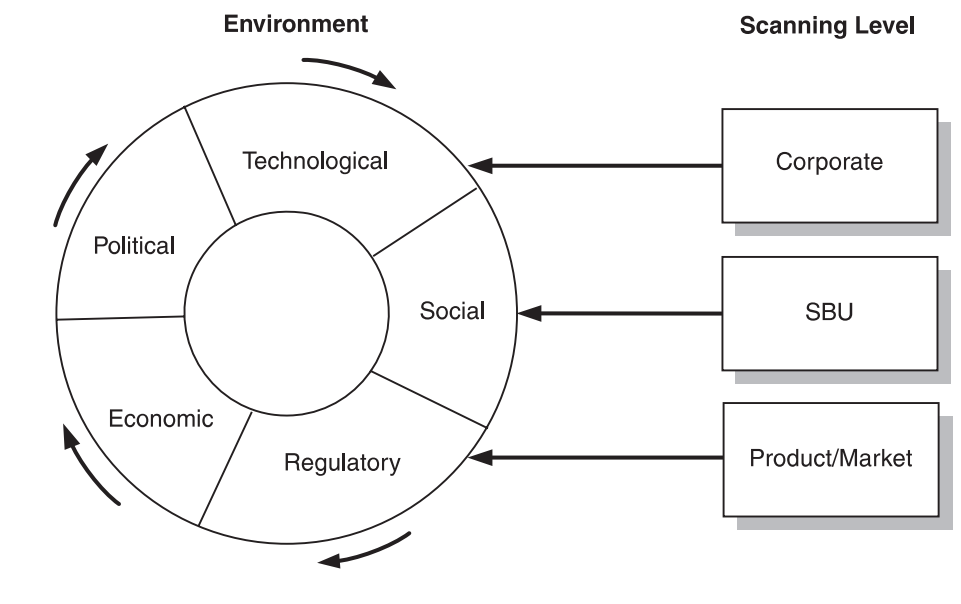
Scanning improves an organization's abilities to deal with a rapidly changing environment in a number of ways:

1. It helps an organization capitalize on early opportunities rather than lose these to competitors.
2. It provides an early signal of impending problems, which can be defused if recognized well in advance.
3. It sensitizes an organization to the changing needs and wishes of its customers.
4. It provides a base of objective qualitative information about the environment that strategists can utilize.
5. It provides intellectual stimulation to strategists in their decision making.
6. It improves the image of the organization with its publics by showing that it is sensitive to its environment and responsive to it.
7. It is a means of continuing broad-based education for executives, especially for strategy developers.

THE CONCEPT OF ENVIRONMENT

Operationally, five different types of environments may be identified—technological, political, economic, regulatory, and social—and the environment may be scanned at three different levels in the organization—corporate, SBU, and product/market level (see Exhibit 6-1). Perspectives of environmental scanning vary from level to level. Corporate scanning broadly examines happenings in different environments and focuses on trends with corporate-wide implications. For

EXHIBIT 6-1
Constituents of Environment



example, at the corporate level IBM may review the impact of competition above and below in the telephone industry on the availability and rates of long-distance telephone lines to its customers. Emphasis at the SBU level focuses on those changes in the environment that may influence the future direction of the business. At IBM, the SBU concerned with personal computers may study such environmental perspectives as diffusion rate of personal computers, new developments in integrated circuit technology, and the political debates in progress on the registration (similar to automobile registration) of personal computers. At the product/market level, scanning is limited to day-to-day aspects. For example, an IBM personal computer marketing manager may review the significance of rebates, a popular practice among IBM's competitors.

The emphasis in this chapter is on environmental scanning from the viewpoint of the SBU. The primary purpose is to gain a comprehensive view of the future business world as a foundation on which to base major strategic decisions.

STATE OF THE ART

Scanning serves as an early warning system for the environmental forces that may impact a company's products and markets in the future. Environmental scanning is a comparatively new development. Traditionally, corporations evaluated themselves mainly on the basis of financial performance. In general, the

environment was studied only for the purpose of making economic forecasts. Other environmental factors were brought in haphazardly, if at all, and intuitively. In recent years, however, most large corporations have started doing systematic work in this area.

A pioneering study on environmental scanning was done by Francis Aguilar. In his investigation of selected chemical companies in the United States and Europe, he found no systematic approach to environmental scanning. Aguilar's different types of information about the environment that the companies found interesting have been consolidated into five groups: *market tidings* (market potential, structural change, competitors and industry, pricing, sales negotiations, customers); *acquisition leads* (leads for mergers, joint ventures); *technical tidings* (new products, processes, and technology; product problems; costs; licensing and patents); *broad issues* (general conditions relative to political, demographic, national issues; government actions and policies); *other tidings* (suppliers and raw materials, resources available, other). Among these groups, market tidings was found to be the dominant category and was of most interest to managers across the board.

Aguilar also identified four patterns for viewing information: *undirected viewing* (exposure without a specific purpose), *conditioned viewing* (directed exposure but without undertaking an active search), *informal search* (collection of purpose-oriented information in an informal manner), and *formal search* (a structured process for collection of specific information for a designated purpose). Both internal and external sources were used in seeking this information. The external comprised both personal sources (customers, suppliers, bankers, consultants, and other knowledgeable individuals) and impersonal sources (various publications, conferences, trade shows, exhibitions, and so on). The internal personal sources included peers, superiors, and subordinates. The internal impersonal sources included regular and general reports and scheduled meetings. Aguilar's study concluded that while the process is not simple, a company can systematize its environmental scanning activities for strategy development.²

Aguilar's framework may be illustrated with reference to the Coca-Cola Company. The company looks at its environment through a series of analyses. At the corporate level, considerable information is gathered on economic, social, and political factors affecting the business and on competition both in the United States and overseas. The corporate office also becomes involved in special studies when it feels that some aspect of the environment requires special attention. For example, in the 1980s, to address itself to a top management concern about Pepsi's claim that the taste of its cola was superior to Coke's, the company undertook a study to understand what was going on in the minds of their consumers and what they were looking for. How was the consumption of Coca-Cola related to their consumers' lifestyle, to their set of values, to their needs? This study spearheaded the work toward the introduction of New Coke.

In the mid-1980s, the corporate office also made a study of the impact of antipollution trends on government regulations concerning packaging. At the corporate level, environment was scanned rather broadly. Mostly market tidings,

technical tidings, and broad issues were dealt with. Whenever necessary, in-depth studies were done on a particular area of concern, and corporate information was made available to different divisions of the company.

At the division level (e.g., Coca-Cola, USA), considerable attention is given to the market situation, acquisition leads, and new business ventures. The division also studies general economic conditions (trends in GNP, consumption, income), government regulation (especially antitrust actions), social factors, and even the political situation. Part of this division-level scanning duplicates the efforts of the corporate office, but the divisional planning staff felt that it was in a position to do a better job for its own purpose than could the corporate office, which had to serve the needs of other divisions as well. The division also undertakes special studies. For example, in the early 1980s, it wondered whether a caffeine-free drink should be introduced and, if so, when.

The information received from the corporate office and that which the division had collected itself was analyzed for events and happenings that could affect the company's current and potential business. Analysis was done mostly through meetings and discussions rather than through the use of any statistical model. At the Coca-Cola Company, environmental analysis is a sort of forum. There is relatively little cohesion among managers; the meetings, therefore, respond to a need for exchange of information between people.

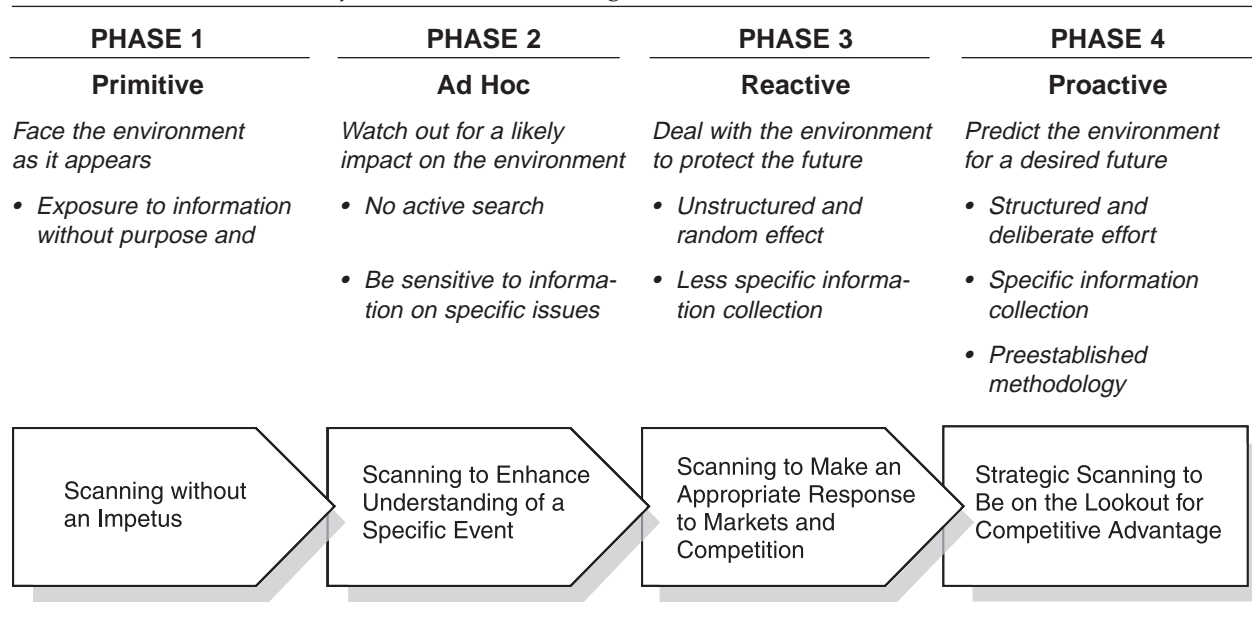
A recent study of environmental scanning identifies four evolutionary phases of activity, from primitive to proactive (see Exhibit 6-2). The scanning activities in most corporations can be characterized by one of these four phases.³

In Phase 1, the primitive phase, the environment is taken as something inevitable and random about which nothing can be done other than to accept each impact as it occurs. Management is exposed to information, both strategic and nonstrategic, without making any effort to distinguish the difference. No discrimination is used to discern strategic information, and the information is rarely related to strategic decision making. As a matter of fact, scanning takes place without management devoting any effort to it.

Phase 2, the ad hoc phase, is an improvement over Phase 1 in that management identifies a few areas that need to be watched carefully; however, there is no formal system for scanning and no initiative is taken to scan the environment. In addition, that management is sensitive to information about specific areas does not imply that this information is subsequently related to strategy formulation. This phase is characterized by such statements as this: All reports seem to indicate that rates of interest will not increase substantially to the year 2000, but our management will never sit down to seriously consider what we might do or not do as a company to capitalize on this trend in the pursuit of our goals. Typically, the ad hoc phase characterizes companies that have traditionally done well and whose management, which is intimately tied to day-to-day operations, recently happened to hire a young M.B.A. to do strategic planning.

In Phase 3, the reactive phase, environmental scanning begins to be viewed as important, and efforts are made to monitor the environment to seek information in different areas. In other words, management fully recognizes the

EXHIBIT 6-2
Four Phases in the Evolution of Environmental Scanning



significance of the environment and dabbles in scanning but in an unplanned, unstructured fashion. Everything in the environment appears to be important, and the company is swamped with information. Some of the scanned information may never be looked into; some is analyzed, understood, and stored. As soon as the leading firm in the industry makes a strategic move in a particular matter, presumably in response to an environmental shift, the company in Phase 3 is quick to react, following the footsteps of the leader. For example, if the use of cardboard bottles for soft drinks appears uncertain, the Phase 3 company will understand the problem on the horizon but hesitate to take a strategic lead. If the leading firm decides to experiment with cardboard bottles, the Phase 3 firm will quickly respond in kind. In other words, the Phase 3 firm understands the problems and opportunities that the future holds, but its management is unwilling to be the first to take steps to avoid problems or to capitalize on opportunities. A Phase 3 company waits for a leading competitor to pave the way.

The firm in Phase 4, the proactive phase, practices environmental scanning with vigor and zeal, employing a structured effort. Careful screening focuses the scanning effort on specified areas considered crucial. Time is taken to establish proper methodology, disseminate scanned information, and incorporate it into strategy. A hallmark of scanning in Phase 4 is the distinction between macro and micro scanning. **Macro scanning** refers to scanning of interest to the entire

corporation and is undertaken at the corporate level. **Micro scanning** is often practiced at the product/market or SBU level. A corporate-wide scanning system is created to ensure that macro and micro scanning complement each other. The system is designed to provide open communication between different micro scanners to avoid duplication of effort and information.

A multinational study on the subject concluded that environmental scanning is on its way to becoming a full-fledged formalized step in the strategic planning process. This commitment to environmental scanning has been triggered in part by the recognition of environmental turbulence and a willingness to confront relevant changes within the planning process. Commitment aside, there is yet no accepted, effective methodology for environmental scanning.⁴

TYPES OF ENVIRONMENT

Corporations today, more than ever before, are profoundly sensitive to technological, political, economic, social, and regulatory changes. Although environmental changes may be felt throughout an organization, the impact most affects strategic perspectives. To cope with a changing and shifting environment, the marketing strategist must find new ways to forecast the shape of things to come and to analyze strategic alternatives and, at the same time, develop greater sensitivity to long-term implications. Various techniques that are especially relevant for projecting long-range trends are discussed in the appendix at the end of this chapter. Suffice it to say here that environmental scanning necessarily implies a forecasting perspective.

Technological Environment

Technological developments come out of the research effort. Two types of research can be distinguished: basic and applied. A company may engage in applied research only or may undertake both basic and applied research. In either case, a start must be made at the basic level, and from there the specific effect on a company's product or process must be derived. A company may choose not to undertake any research on its own, accepting a secondary role as an imitator. The research efforts of imitators will be limited mainly to the adaptation of a particular technological change to its business.

There are three different aspects of technology: type of technology, its process, and the impetus for its development. Technology itself can be grouped into five categories: energy, materials, transportation, communications and information, and genetic (includes agronomic and biomedical). The original impetus for technological breakthroughs can come from any or all of three sources: meeting defense needs, seeking the welfare of the masses, and making a mark commercially. The three stages in the process of technological development are invention, the creation of a new product or process; innovation, the introduction of that product or process into use; and diffusion, the spread of the product or process beyond first use.

The type of technology a company prefers is dictated, of course, by the company's interests. Impetus points to the market for technological development, and

the process of development shows the state of technological development and whether the company is in a position to interface with the technology in any stage. For example, the invention and innovation stages may call for basic research beyond the resources of a company. Diffusion, however, may require adaptation, which may not be as difficult as the other two stages.

The point may be illustrated with reference to aluminum cans.⁵ Gone are the days when almost every soda and beer product on store shelves came in identical aluminum cans. Sure, Coke was red and Pepsi was blue, but underneath the paint was the same sturdy, flip-top container. Just as technical advances allowed the aluminum industry to seize the can business from steel in the 1960s, today innovations from plastic, glass, and even good old steel, are undermining aluminum's hegemony. That is a problem for Aluminum Co. of America and its competitors in the aluminum industry. Over the past 20 years, they have come to dominate the \$11 billion beverage container market. Cans account for one-fifth of the aluminum sold in North America, which makes it the industry's biggest business—bigger than airplane parts or siding for houses. Moreover, the can business has been the key to growth for aluminum companies, which scurried to build mills in the 1980s. Now they find themselves swamped with capacity. Although the industry produces a staggering 100 billion cans a year, the number has been flat since 1994. From 1985–1996, glass increased its share of beer packaging from 31% to 37%, while aluminum's portion shrank from 56% to 51%. Meanwhile, in soda, innovations such as Coke's plastic contour bottle are muscling aluminum aside. Plastic bottles are even finding their way into vending machines, where aluminum was once invincible. Now plastic industry researchers are working to come up with a nonporous compound that could be used to hold beer. This materials war has forced aluminum to rethink the plain aluminum can and spend more on eye-catching shapes and textures. It will be interesting to see how far they succeed in dominating the beverage market.

Consider another example: Startling things have been happening to the television set in the last few years. For example, Panasonic now offers a color-projection system with a 60-inch screen. Toshiba Corp. of Japan has developed large, flat-screen television sets that are so slim that they can hang on the wall like paintings. Even traditional 19-inch sets aren't just for looking at anymore; they are basic equipment on which to play video games, to learn how to spell, or to practice math. Videodisc players produce television images from discs; videocassette recorders tape television shows and play prerecorded videotapes. With two-way television, the viewer can respond to questions flashed on the screen. Teleprint enables the conversion of television sets into video-display tubes so that viewers can scan the contents of newspapers, magazines, catalogs, and the like and call up any sections of interest.⁶ Finally, cable television permits the viewer to call on the system's library for a game, movie, or even a French lesson.

The 1990s have been a period of technological change and true innovation. One of the areas of greatest impact is communications. Until now, electronic communication has largely been confined to the traditional definition of voice

(telephone), pictures (television), and graphics (computer), three distinct kinds of communication devices. From now on, electronics will increasingly produce total communications. Today it is possible to make simultaneous and instantaneous electronic transmission of voice, pictures, and graphics. People scattered over the face of the globe can now talk to each other directly, see each other, and, if need be, share the same reports, documents, and graphs without leaving their own offices or homes. Consider the impact of this innovation on the airline industry. Business travel should diminish in importance, though its place may well be taken by travel for vacations and learning.

To analyze technological changes and capitalize on them, marketing strategists may utilize the technology management matrix shown in Exhibit 6-3. The matrix should aid in choosing appropriate strategic options based on a business's technological position. The matrix has two dimensions: technology and product. The technology dimension describes technologies in terms of their relationships to one another; the product dimension establishes competitive position. The interaction of these two dimensions suggests desirable strategic action. For example, if a business's technology is superior to anything else on the market, the company should enhance its leadership by identifying and introducing new applications for the technology. On the other hand, if a business's technology lags behind the competition, it should either make a technological leap to the competitive process, abandon the market, or identify and pursue those elements that are laggards in terms of adopting new technologies.⁷

Briefly, the rapid development and exploitation of new technologies are causing serious strategic headaches for companies in almost every type of industry. It has become vital for strategists to be able to recognize the limits of their core technologies, know which new technologies are emerging, and decide when to incorporate new technology in their products.

Political Environment

In stable governments, political trends may not be as important as in countries where governments are weak. Yet even in stable countries, political trends may have a significant impact on business. For example, in the United States one can typically expect greater emphasis on social programs and an increase in government spending when Democrats are in power in the White House. Therefore, companies in the business of providing social services may expect greater opportunities during Democratic administrations.

More important, however, are political trends overseas because the U.S. economy is intimately connected with the global economy. Therefore, what goes on in the political spheres of other countries may be significant for U.S. corporations, particularly multinational corporations.

The following are examples of political trends and events that could affect business planning and strategy:

1. An increase in geopolitical federations.
 - a. Economic interests: resource countries versus consumer countries.
 - b. Political interests: Third World versus the rest.

EXHIBIT 6-3
Technology Management Matrix

<i>Product Position</i>	TECHNOLOGY POSITION		
	<i>Same Technology</i>	<i>Different Technology</i>	
		<i>Older Technology</i>	<i>Newer Technology</i>
Behind competitors	Take traditional strategic actions — Assess marketing strategy and target markets — Enhance product features — Improve operational efficiency	Evaluate viability of your technology — Implement newer technology — Divest products based on older technology	Evaluate availability of resources to sustain technology development and full market acceptance — Continue to define new applications and product enhancements — Scale back operations
Ahead of competitors	Define new applications for the technology and enhance products accordingly	Take advantage of all possible profit	Define new applications for the technology and enhance products accordingly

Source: Susan J. Levine, "Marketers Need to Adopt a Technological Focus to Safeguard Against Obsolescence," *Marketing News* (28 October 1988): 16. Reprinted by permission of the American Marketing Association.

2. Rising nationalism versus world federalism.
 - a. Failure of the United Nations.
 - b. Trend toward world government or world law system.
3. Limited wars: Middle East, Serbia-Croatia.
4. Increase in political terrorism; revolutions.
5. Third-party gains in the United States; rise of socialism.
6. Decline of the major powers; rise of emerging nations (e.g., China, India, Brazil).
7. Minority (female) president.
8. Rise in senior citizen power in developed nations.
9. Political turmoil in Saudi Arabia that threatens world oil supplies and peace in the Middle East.
10. Revolutionary change in Indonesia, jeopardizing Japanese oil supplies.
11. Revolutionary change in South Africa, limiting Western access to important minerals and threatening huge capital losses to the economies of Great Britain, the United States, and Germany.
12. Instability in other places where the economic consequences could be important, including Mexico, Turkey, Zaire, Nigeria, South Korea, Brazil, Chile, and the People's Republic of China.

Already in 1997–1998 we have seen the overwhelming impact that political shocks can have on the world economy. The value of the Indonesian rupiah is the perfect illustration: it was not just the product of an arbitrary monetary policy

that was temporarily out of control but a rational response to problems that were fundamentally political. The Indonesian government in the 1990s continued to incur huge budget deficits and kept on borrowing, making itself dangerously dependent on the inflows of foreign capital. As the new government took over in 1998, inflation was high and the country became vulnerable to capital flight, leaving no choice for the government but to devalue the rupiah. The weakened Indonesian economy, staggered by the deep devaluation of the rupiah, had strong reverberations for the United States, with hundreds of thousands of jobs and billions of dollars of export business lost.

Marketing strategy is deeply affected by political perspectives. For example, government decisions have significantly affected the U.S. automotive industry. Stringent requirements, such as fuel efficiency standards, have burdened the industry in several ways.⁸ The marketing strategist needs to study both domestic and foreign political happenings, reviewing selected published information to keep in touch with political trends and interpret the information as it relates to the particular company.

Governments around the world help their domestic industries strengthen their competitiveness through various fiscal and monetary measures. Political support can play a key role in an industry's search for markets abroad. Without it, an industry may face a difficult situation. For instance, the U.S. auto industry would benefit from a U.S. government concession favoring U.S. automotive exports. European countries rely on value-added taxes to help their industries. Value-added taxes are applied to all levels of manufacturing transactions up to and including the final sale to the end user. However, if the final sale is for export, the value-added tax is rebated, thus effectively reducing the price of European goods in international commerce. Japan imposes a commodity tax on selected lines of products, including automobiles. In the event of export, the commodity tax is waived. The United States has no corresponding arrangement. Thus, when a new automobile is shipped from the United States to Japan, its U.S. taxes upon export are not rebated and the auto also must bear the cost of the Japanese commodity tax (15 or 20 percent, depending on the size of the vehicle) when it is sold in Japan. This illustrates how political decisions affect marketing strategy.

Economic Environment

Economic trends and events affecting businesses include the following possibilities:

- Depression; worldwide economic collapse
- Increasing foreign ownership of the U.S. economy
- Increasing regulation and management of national economies
- Several developing nations become superpowers (e.g., Brazil, India, China)
- World food production: famine relief versus holistic management
- Decline in real world growth or stable growth
- Collapse of world monetary system
- High inflation
- Significant employee-union ownership of U.S. businesses
- Worldwide free trade

It is not unrealistic to say that all companies, small or large, that are engaged in strategic planning examine the economic environment. Relevant published information is usually gathered, analyzed, and interpreted for use in planning. In some corporations, the entire process of dealing with economic information may be manual and intuitive. The large corporations, however, not only buy specific and detailed economic information from private sources, over and above what may be available from government sources, but they analyze the information for meaningful conclusions by constructing econometric models. For example, one large corporation with nine divisions has developed 26 econometric models of its different businesses. The data used for these models are stored in a database and are regularly updated. The information is available online to all divisions for further analysis at any time. Other companies may occasionally buy information from outside and selectively undertake modeling.

Usually the economic environment is analyzed with reference to the following key economic indicators: employment, consumer price index, housing starts, auto sales, weekly unemployment claims, real GNP, industrial production, personal income, savings rate, capacity utilization, productivity, money supply (weekly M1: currency and checking accounts), retail sales, inventories, and durable goods orders. Information on these indicators is available from government sources. These indicators are adequate for short-run analysis and decision making because, by and large, they track developments over the business cycle reasonably well. However, companies that try to base strategic plans on these indicators alone can run into serious trouble. Deficiencies in the data prove most dangerous when the government moves to take a more interventionist role in the economy. Further, when the ability of statistical agencies to respond has been hampered by unprecedented budget stringency, rapid changes in the structure of the economy cause a gradual deterioration in the quality of many of the economic statistics that the government publishes.

The problem of government-supplied data begins with a recondite document called the *Standard Industrial Classification (SIC) Manual*, which divides all economic activity into 12 divisions and 84 major groups of industries. The *SIC Manual* dictates the organization of and the amount of data available about production, income, employment, and other vital economic indicators. Each major group has a two-digit numerical code. The economy is then subdivided into hundreds of secondary groups, each with a three-digit code, and is further subdivided into thousands of industries, each with four-digit codes. But detail in most government statistical series is available only at the major group level; data at the three-digit level are scarce; at the four-digit level, almost nonexistent. Thus, information available from public sources may not suffice.

To illustrate the effect of economic climate on strategy, consider the following trends. In the more elderly capitalist countries, it is expected that old markets will become saturated much faster than new markets will take their place. Staple consumer goods, such as cars, radios, and television sets, already outnumber households in North America and in much of Western Europe; other products are fast approaching the same fate. The slow growth of populations in most of these

countries means that the number of households is likely to grow at only about 2 percent annually to the year 2000 and that demand for consumer goods is unlikely to grow any faster. Furthermore, while demand in these markets decreases, supply will increase, leading to intensified price competition and pressure on profit margins.

For example, as we enter the new century, the auto industry is likely to suffer from overcapacity. It is expected that there will be three buyers for every four cars.⁹ Already the market concentration in many consumer sectors has fallen significantly, mainly because of increased foreign competition. And the expansion of production capacity in such primary industries as metals and chemicals, especially in developing countries, may bring some kind of increased competition to producer goods.

These trends indicate the kind of economic issues that marketing strategists must take into account to determine their strategies.

Social Environment

The ultimate test of a business is its social relevance. This is particularly true in a society where survival needs are already being met. It therefore behooves the strategic planner to be familiar with emerging social trends and concerns. The relevance of the social environment to a particular business will, of course, vary depending on the nature of the business. For a technology-oriented business, scanning the social environment may be limited to aspects of pollution control and environmental safety. For a consumer-products company, however, the impact of the social environment may go much further.

An important aspect of the social environment concerns the values consumers hold. Observers have noted many value shifts that directly or indirectly influence business. Values mainly revolve around a number of fundamental concerns regarding time, quality, health, environment, home, personal finance, and diversity.¹⁰

Orientation Toward Time. Given the scarcity of time and/or money to have products repaired or to buy new ones, consumers look for offerings that endure. Time has become the scarce resource as the result of the prevalence of dual income-earning households. Convenience is a critical source of differential advantage, particularly in foods and services. In addition, youth are making or influencing more household purchasing decisions than ever before. Moreover, as the population ages, time pressures become more widespread and acute. Consumers are going to need innovative and, in some cases, almost customized solutions. With time generally scarcer than money, offerings that ease time pressures will garner higher margins. For example, today's average consumer, more often than not a woman, takes just 21 minutes to do her shopping—from the moment she slams her car door in a supermarket parking lot to the moment she climbs back in with her purchases. In that time, she buys an average of 18 items, out of 30,000 to 40,000 choices. She has less time to browse; it is down 25% from five years ago. She isn't even bothering to check prices. She wants the same product, at the same prices, in the same row, week after week. Under such a scenario,

it does not make sense for P&G to make 55 price changes a day across 110 brands, offering 440 promotions a year, tinkering with package size, color and contents. To keep up with time, after 159 years P&G changed the name of its sales department to Customer Business Development, and let consumers drive supply than to force-feed retailers by making them buy more products than they can sell. To implement this concept involved everything from truck schedules to helping clean retailers' shelves of accumulated grime. It has prompted the tight-lipped company to share its consumer research with retailers. Gone are 27 types of promotions. All in all, P&G hopes to save \$1.35 billion by the turn of the century.¹¹

Quality. Given the standards set by the influx of imported products, American consumers have developed a new set of expectations regarding quality; hence, they assign high priorities to those offerings that provide optimal price/quality. We are witnessing a move toward the adoption of a greater price/quality orientation in mass markets. There will continue to be a strong general desire for authenticity and lasting quality. Consumers will require fewer and more durable products rather than more ephemeral, novelty products. Heightened consumer expectations will translate into trying a manufacturer once. If the value, the quality, or the intrinsic characteristics that the consumer demands are not found, the consumer will not return to that manufacturer.

Health. A large and growing segment of the American population has become increasingly preoccupied with health. Health concerns are a function of both an aging population and changing predispositions. America is hungry for health and is impatient for its achievement. Industry experts are predicting that nutritional tags, such as "low in fat," will probably be the newest food fad to sweep the United States. There is some consensus that a diet rich in soluble fiber and low in fat and a lifestyle that includes plenty of regular exercise reduce cholesterol. As an aging population strives to maintain its youth and vitality, alcohol and tobacco consumption and other unhealthy dietary habits will continue to decline. In short, American consumers have become highly health conscious. The impact of this trend will not only be felt in the grocery store but in the travel and hospitality sectors of the economy, as well as in an array of services that contribute to lifelong wellness.

Environment. Perhaps the 1990s became the "earth decade." A growing number of Americans consider themselves "environmentalists." Outdoor activities, such as rock-climbing expeditions and whitewater rafting, are superseding more vicarious, passive ways of spending time. This heightened appreciation of the outdoors is being translated in choice criteria in the marketplace. Hence, more and more marketers are pressured into adopting "green" strategies; that is, offering products and services that are beneficial to the environment.¹²

Home. In a more domesticated society, the many technological innovations of recent years are making staying at home more fun. Some of the most beneficial advances of this home-centered decade are in the design and construction of houses that resemble self-contained entertainment/educational activity centers.

The recent slump in the housing market has rebounded, and opportunities for marketers to provide creative, more personalized, high-value offerings in home furnishings are evolving.¹³

Personal Finance. Most experts on consumer behavior expect that in the new century, people will be more frugal than they were in the past. The slow-and-steady consumer approach spawned by an attitude for upscale products that may outstrip finances makes every purchase especially important. We are witnessing several important consumer finance trends. First, consumers continue to seek out the best price/value before buying and accordingly place downward pressure on seller profit margins. Second, American consumers may have the income to spend freely, but recent economic difficulties nonetheless have caused them to remain cautious. Finally, quality is insisted upon, and a competitive premium price is willingly paid for performance and durability.

Diversity of Lifestyles. The predominance of diverse lifestyles is reflected by the significant increase in the number and the stature of women in the labor market. The increased presence of women in the labor force has dramatically influenced how men and women relate to one another and the personal and professional roles assumed by each. With 70 percent of women holding jobs outside the home, millions of men are doing chores their fathers would never have dreamed of. For example, men bought 25 percent of the groceries in the United States in 1991, up from 17 percent five years earlier.¹⁴ There has also been a dramatic change in racial integration and improved race relations. The United States has also witnessed the development of openly gay and lesbian lifestyles as well as an increase in the number of unmarried, cohabitating relationships. Significant changes in attitudes toward work and careers have also resulted in a new sense of independence and individuality. Accordingly, there has been an upsurge in the number of people who are self-employed. Experts hold that this pattern of social diversity will likely continue into the future. Social diversity creates opportunities for marketers to develop personalized offerings that allow individuals to derive satisfaction in the pursuit of different living alternatives.

In conclusion, American consumers will continue to search for basic values and will experience heightened ethical awareness.¹⁵ Consumers will still care about what things cost, but they will value only things that will endure—family, community, earth, faith.

Information on social trends may be derived from published sources. The impact of social trends on a particular business can be studied in-house or with the help of outside consultants. A number of consulting firms specialize in studying social trends.

Let us examine the strategic impact of two of the value shifts mentioned above: orientation toward time and concern for health. Consider the retail industry. Little is being done to support consumers in their quest to reduce shopping stress, although stress is a major consumer concern. Fast service has been the basis for growth for a number of well-known firms, among them American Express, McDonald's, and Federal Express; however, only a small but significant

number of businesses have recognized and responded to the consumer's lack of free time for shopping and service transactions:

- Dayton-Hudson has moved away from a maze-like floor design to a center aisle design, making it easier for customers to find their way through the store. At Childworld, toys are coordinated in learning centers so that buyers can examine and play with products. Management feels that this arrangement enables buyers to shop more quickly.
- A new firm, Shopper's Express, is assisting large chains such as A&P and Safeway by taking telephone orders and delivering merchandise.
- Rather than forcing the consumer to sit at home for an entire day awaiting a service call, GE, for years, has been making specific service appointments.
- Sears now offers six-day-a-week and evening repair service. In addition, in specifying when a repair person will arrive, Sears assigns a two-hour window.
- Montgomery Ward authorizes 7,700 sales clerks to approve sales checks and handle merchandise returns on their own, eliminating the time needed to get a floor manager's approval.
- Burger King uses television monitors that enable drive-up customers to see the waiter and the order.
- A&P, Shop Rite, and Publix are experimenting with automated grocery checkout systems that reduce waiting time in checkout lines.
- Wegman's, a supermarket chain in Rochester, New York, has a computer available for entering deli orders so that the customer does not have to wait to be served. The customer simply enters the order and picks it up on the way out of the store.¹⁶

More and more companies need to focus on developing shopping support systems and environments that help customers move through the buying process quickly. For firms that pride themselves for providing customers with a leisurely shopping environment, this will be a radical departure. Firms accepting this challenge will be able to support and stay closer to their customers through such changes. In addition, firms that help customers reduce shopping time will be able to differentiate themselves from competitors more easily.

For health reasons, salads and fish are replacing the traditional American dinner of meat and potatoes. Vegetarianism is on the rise. According to *Time*, about 8 million Americans call themselves vegetarians.¹⁷ Increasing varieties of decaffeinated coffee and tea and substitutes for sugar and salt are crowding supermarket shelves. Shoppers are reading the small print to check for artificial ingredients in foods and beverages that they once bought without a thought. Smoking is finally declining. Manufacturers and retailers of natural foods are building a healthy "health industry." Even products that do not easily accommodate healthier choices are being redeveloped in response to consumer concerns. For example, Dunkin Donuts has yanked the egg yolks from all but four of its 52 varieties to make its donuts cholesterol-free.¹⁸ Fast food firms—McDonald's Corporation and Hardee's Food Systems, for example—have introduced low-fat foods into their menus.¹⁹

The nation's dramatic new awareness of health is prompting these changes. The desire to feel better, look younger, and live longer exerts a powerful influence

on what people put into their bodies. This strong force is now moving against a well-entrenched habit that affects millions and dates back to biblical times—the consumption of too much alcohol.²⁰

Health substitutes for alcoholic beverages, labeled “dealcoholized” beverages, are now being offered to American consumers. For some time, gourmet food shops have stocked champagne-like bottles of carbonated grape juice and cans containing a not-fully-brewed mixture of water, malt, corn, yeast, and hops. Except for their packaging, these alcohol-free imitations failed to resemble wine and beer, especially in the crucial area of taste. New dealcoholized beverages, however, are fully fermented, or brewed, before their alcohol is separated out—either by pressure or heat—to below an unnoticeable 0.5 percent, the federal maximum before classifying a drink as alcoholic. The taste and body of the new beverages match that of their former alcoholized selves.

This 0.5 percent level is so low that a drinker would need to consume 24 glasses of dealcoholized wine or 8 cans of dealcoholized beer to obtain the amount of alcohol in one 4-ounce glass of regular wine or one 12-ounce can of regular beer. Thus, the drinker avoids not only intoxication but also worthless calories. A regular glass of wine or beer has about 150 calories, while their dealcoholized copies contain about 40 to 60 calories, respectively. And their prices are the same.²¹ Introduced in Europe about five years ago, dealcoholized wines are slowly making headway in the United States.

Regulatory Environment

Government influence on business appears to be increasing. It is estimated that businesses spend, on the average, twice as much time fulfilling government requirements today as they did 10 years ago.²² Consider the case of Frito-Lay, which has long been America’s leading salty snack company.²³ In recent years, the PepsiCo Subsidiary, whose offerings include Lay’s Potato Chips and Rold Gold Pretzels, has boosted its industry market share from 38% to 55%. Because of this stellar performance, the Justice Department suspects that something must be rancid at Frito-Lay. The Justice Department is said to be looking hard at Frito-Lay’s use of shelf allowances, a common retailing practice in which manufacturers pay stores up to \$100,000 a foot for desirable shelf space. Among other things, investigators want to know if Frito-Lay has been purchasing more space than it needs in order to muscle out competitors. Since 1990, Frito-Lay has beaten a number of competitors. Anheuser-Busch sold its Eagle Snack division to Frito-Lay in 1996 after persistently losing money since they entered the field in 1979. Another well-known casualty was Borden, whose market share declined from 12% to 5%. Dozens of independent regional snack companies have folded in recent years. Frito-Lay makes no bones about it and asks, Is it really a crime to be better than everyone else?

Interestingly, government in recent years has changed its emphasis from regulating specific industries to focusing on problem areas of national interest, including environmental cleanup, elimination of job discrimination, establishment of safe working conditions, and reduction of product hazards. A number of steps have been taken toward deregulation of various industries.

This shift in focus in the regulatory environment deeply affects the internal operations of business. To win or even survive in the competitive, free-for-all environment that follows deregulation, companies in once-regulated industries must make some hard choices. Astute management can avoid some of the trauma by developing an explicit strategy to operate in a deregulated environment well in advance of the event, rethinking relationships with customers, considering new roles to play in the market, and realigning their organizations accordingly.

To study the impact of the regulatory environment, that is, of laws already on the books and of pending legislation, legal assistance is required. Small firms may seek legal assistance on an ad hoc basis. Large firms may maintain offices in Washington staffed by people with legal backgrounds who are well versed in the company's business, who know important government agencies from the point of view of their companies, who maintain a close liaison with them, and who pass on relevant information to planners in different departments of their companies.

ENVIRONMENTAL SCANNING AND MARKETING STRATEGY

The impact of environmental scanning on marketing strategy can be illustrated with reference to videotex technology.²⁴ Videotex technology—the merging of computer and communications technologies—delivers information directly to the consumer. The consumer may instantly view desired textual and visual information from on-line databases on television screens or other video receivers by pushing the appropriate buttons or typing the proper commands.

Possibilities for business and personal use of videotex are as endless as the imagination. Consumers are already utilizing videotex for shopping, travel, personal protection, financial transactions, and entertainment, in greater privacy and autonomy than ever before.

With the mechanism for getting things done most efficiently and cost effectively, marketing strategists have begun to explore the implications of videotex on marketing decisions. Videotex will alter the demand for certain kinds of goods and services and the ways in which consumers interact with marketing activities. For the first time, the average consumer, not just the affluent consumer, can interact directly with the production process, dictating final product specifications as the product is being manufactured. As small-batch production becomes more cost-effective, this type of consumer-producer interaction will become more common.

Product selection might also be enhanced by videotex, as sellers stock a more complete inventory at fewer, more central locations rather than dealing with many retail outlets. Because packages will no longer serve as the communications vehicle for selling the product, less money will be spent on packaging. Product changes can also be kept up-to-date. Information on videotex will be current, synthesized, and comprehensive. The user will have the power to access only desired information at the time it is desired. Advertising messages and articles will be available in index form.

Direct consumer interaction with manufacturers will eliminate distribution channels. Reduced or zero-based inventory will reduce obsolescence and turnover

costs. Centrally located warehouses and new delivery routes will become increasingly cost-effective. The remaining retail stores will be transformed into showrooms with direct-order possibilities via view-data-like terminals.

Promotional material will become more educational and information-based, including the provision of product specifications and independent product evaluations. Interactive video channels will provide advertisers and interested shoppers with prepackaged commercials and live shopping programs.

With more accurate price and product information, more perfect competition will result. Price discrepancies will be reduced. Consumers will engage in more preshopping planning, price-comparison shopping, and in-home shopping.

The market segment concept will be more important than ever before. The individualizing possibilities of videotex will enable the seller to measure and reach segments with unparalleled accuracy and will also enable consumers to effectively self-segment. Advertisers and consumers will benefit from 24-hour, 7-day-a-week salespeople. Everyone will be better prepared through videotex to satisfy customers.

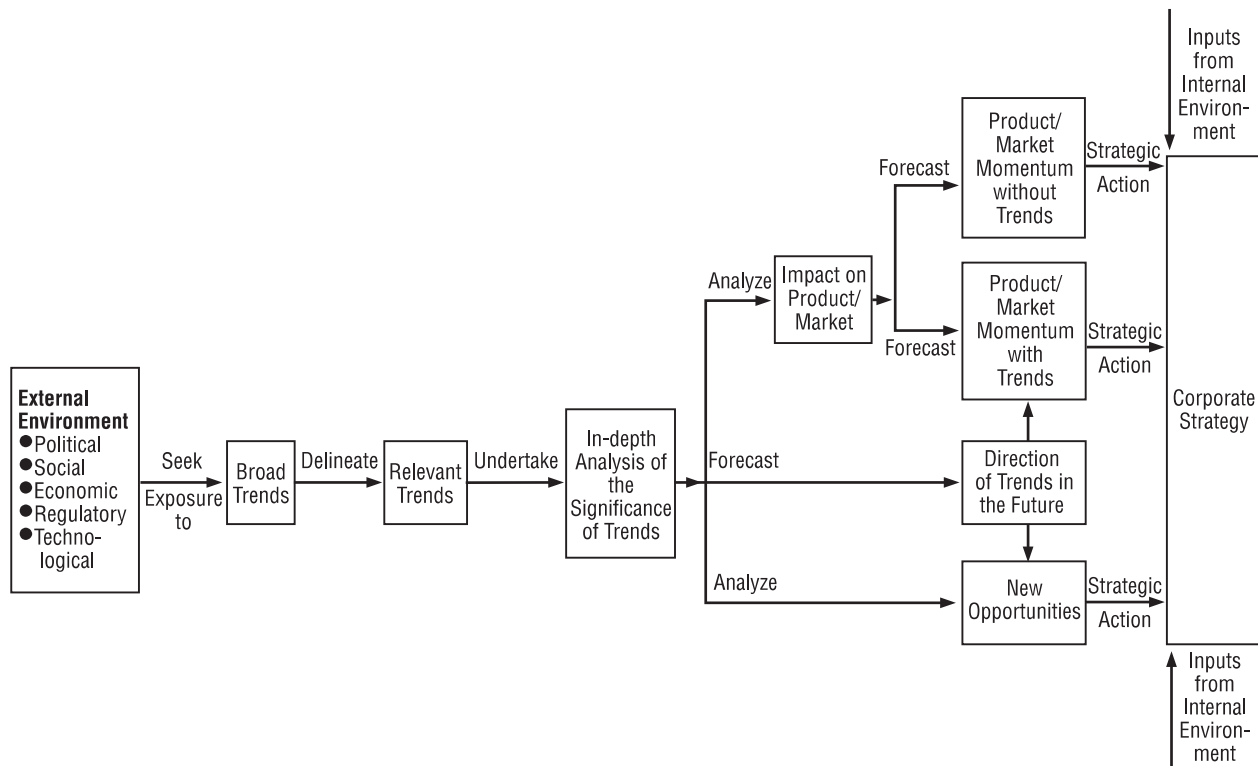
ENVIRONMENTAL SCANNING PROCEDURE

Like any other new program, the scanning activity in a corporation evolves over time. There is no way to introduce a foolproof system from the beginning. If conditions are favorable—if there is an established system of strategic planning in place and the CEO is interested in a structured effort at scanning—the evolutionary period shortens, of course, but the state of the art may not permit the introduction of a fully developed system at the outset. Besides, behavioral and organizational constraints require that things be done over a period of time. The level and type of scanning that a corporation undertakes should be custom designed, and a customized system takes time to emerge into a viable system.

Exhibit 6-4 shows the process by which environmental scanning is linked to marketing strategy. Listed below and on the next pages are the procedural steps that explain this relationship.

1. **Keep a tab on broad trends appearing in the environment**—Once the scope of environmental scanning is determined, broad trends in chosen areas may be reviewed from time to time. For example, in the area of technology, trends in energy utilization, material science, transportation capability, mechanization and automation, communications and information processing, and control over natural life may be studied.
2. **Determine the relevance of an environmental trend**—Not everything happening in the environment may be relevant for a company. Therefore, attempts must be made to select those trends that have significance for the company. There cannot be any hard-and-fast rules for making a distinction between relevant and irrelevant. Consider, for example, the demise of the steam locomotive industry. Management's creativity and farsightedness would play an important role in a company's ability to pinpoint relevant areas of concern. Described below is one way (for a large corporation) of identifying relevant trends in the environment:

EXHIBIT 6-4
Linking Environmental Scanning to Corporate Strategy



- Place a senior person in charge of scanning.
- Identify a core list of about 100 relevant publications worldwide.
- Assign these publications to volunteers within the company, one per person. Selected publications considered extremely important should be scanned by the scanning manager.
- Each scanner reviews stories/articles/news items in the assigned publication that meet predetermined criteria based on the company's aims. Scanners might also review books, conference proceedings, lectures, and presentations.
- The scanned information is given a predetermined code. For example, a worldwide consumer-goods company used the following codes: subject (e.g., politics); geography (e.g., Middle East); function (e.g., marketing); application (e.g., promotion, distribution); and "uniterm," or keyword, for organizing the information. An abstract is then prepared on the story.
- The abstract, along with the codes, is submitted to a scanning committee, consisting of several managers, to determine its relevance in terms of effect on corporate, SBU, and product/market strategy. An additional relevance code is added at this time.

- The codes and the abstract are computerized.
 - A newsletter is prepared to disseminate the information companywide. Managers whose areas are directly affected by the information are encouraged to contact the scanning department for further analysis.
3. **Study the impact of an environmental trend on a product/market**—An environmental trend can pose either a threat or an opportunity for a company's product/market; which one it turns out to be must be studied. The task of determining the impact of a change is the responsibility of the SBU manager. Alternatively, the determination may be assigned to another executive who is familiar with the product/market. If the whole subject appears controversial, it may be safer to have an ad hoc committee look into it; or consultants, either internal or external, may be approached. There is a good chance that a manager who has been involved with a product or service for many years will look at any change as a threat. That manager may, therefore, avoid the issue by declaring the impact to be irrelevant at the outset. If such nearsightedness is feared, perhaps it would be better to rely on a committee or a consultant.
 4. **Forecast the direction of an environmental trend into the future**—If an environmental trend does appear to have significance for a product/market, it is desirable to determine the course that the trend is likely to adopt. In other words, attempts must be made at environmental forecasting.
 5. **Analyze the momentum of the product/market business in the face of the environmental trend**—Assuming that the company takes no action, what will be the shape of the product/market performance in the midst of the environmental trend and its future direction? The impact of an environmental trend is usually gradual. While it is helpful to be the "first" to recognize a trend and take action, all is not lost if a company waits to see which way the trend proceeds. But how long one waits depends on the diffusion process, the rate at which the change necessitated by the trend is adopted. People did not jump to replace their black-and-white television sets overnight. Similar examples abound. A variety of reasons may prohibit an overnight shift in markets due to an environmental trend that may deliver a new product or process. High prices, religious taboos, legal restrictions, and unfamiliarity with the product or service would restrict changeover. In brief, the diffusion process should be predicted before arriving at a conclusion.
 6. **Study the new opportunities that an environmental trend appears to provide**—An environmental trend may not be relevant for a company's current product/market, but it may indicate promising new business opportunities. For example, the energy crisis provided an easy entry point for fuel-efficient Hondas into the United States. Such opportunities should be duly pinpointed and analyzed for action.
 7. **Relate the outcome of an environmental trend to corporate strategy**—Based on environmental trends and their impacts, a company needs to review its strategy on two counts: changes that may be introduced in current products/markets and feasible opportunities that the company may embrace for action. Even if an environmental trend poses a threat to a company's product/market, it is not necessary for the company to come out with a new product to replace an existing one. Neither is it necessary for every competitor to embrace the "change." Even without developing a new product, a company may find a niche in the market to

which it could cater despite the introduction of a new product by a competitor. The electric razor did not make safety razor blades obsolete. Automatic transmissions did not throw the standard shift out of vogue. New markets and new uses can be found to give an existing product an advantage despite the overall popularity of a new product.

Although procedural steps for scanning the environment exist, scanning is nevertheless an art in which creativity plays an important role. Thus, to adequately study the changing environment and relate it to corporate strategy, companies should inculcate a habit of creative thinking on the part of its managers. The experience of one insurance company illustrates the point: in order to “open up” line managers to new ideas and to encourage innovation in their plans, they are, for a while, withdrawn from the line organization to serve as staff people. In staff positions, they are granted considerable freedom of action, which enhances their ability to manage creatively when they return to their management positions.

CONDUCTING ENVIRONMENTAL SCANNING: AN EXAMPLE

Following the steps in Exhibit 6-5, an attempt is made here to illustrate how specific trends in the environment may be systematically scanned.

A search of the literature in the area of politics shows that the following federal laws were considered as we approach the next century:

1. Requiring that all ad claims be substantiated.
2. Publishing corporate actions that endanger the environment.
3. Disclosing lobbying efforts in detail.
4. Reducing a company’s right to fire workers at will.
5. Eliminating inside directors.

EXHIBIT 6-5

Systematic Approach to Environmental Scanning

1. Pick up events in different environments (via literature search).
 2. Delineate events of interest to the SBU in one or more of the following areas: production, labor, markets (household, business, government, foreign), finance, or research and development. This could be achieved via trend-impact analysis of the events.
 3. Undertake cross-impact analysis of the events of interest.
 4. Relate the trends of the noted events to current SBU strategies in different areas.
 5. Select the trends that appear either to provide new opportunities or to pose threats.
 6. Undertake forecasts of each trend
 - wild card prediction
 - most probable occurrence
 - conservative estimate
 7. Develop three scenarios for each trend based on three types of forecasts.
 8. Pass on the information to strategists.
 9. Repeat Steps 4 to 7 and develop more specific scenarios vis-à-vis different products/markets. Incorporate these scenarios in the SBU strategy.
-

The marketing strategist of a consumer-goods company may want to determine if any of these trends has any relevance for the company. To do so, the strategist may undertake trend-impact analysis. Trend-impact analysis requires the formation of a delphi panel (see Chapter 12) to determine the desirability (0-1), technical feasibility (0-1), probability of occurrence (0-1), and probable time of occurrence (2000, 2005, and beyond 2005) of each event listed. The panel may also be asked to suggest the area(s) that may be affected by each event (i.e., production, labor, markets [household, business, government, export], finance, or research and development).

Information about an event may be studied by managers in areas that, according to the delphi panel, are likely to be affected by the event. If their consensus is that the event is indeed important, scanning may continue (see Exhibit 6-6).

Next, cross-impact analysis may be undertaken. This type of analysis studies the impact of an event on other events. Where events are mutually exclusive, such analysis may not be necessary. But where an event seems to reinforce or inhibit other events, cross-impact analysis is highly desirable for uncovering the true strength of an event.

Cross-impact analysis amounts to studying the impact of an event (given its probability of occurrence) upon other events. The impact may be delineated either in qualitative terms (such as critical, major, significant, slight, or none) or in quantitative terms in the form of probabilities.

Exhibit 6-7 shows how cross-impact analysis may be undertaken. Cross-impact ratings, or probabilities, can best be determined with the help of another

EXHIBIT 6-6

Trend-Impact Analysis: An Example

<i>Event</i>	<i>Requiring That All Ad Claims Be Substantiated</i>	<i>Reducing a Company's Right to Fire Workers at Will</i>
Desirability	0.8	0.5
Feasibility	0.6	0.3
Probability of occurrence	0.5	0.1
Probable time of occurrence	1995	Beyond 2000
Area(s) impacted	Household markets Business markets Government markets Finance Research and development Production	Labor Finance
Decision	Carry on scanning	Drop from further consideration

Note: Two to three rounds of delphi would be needed to arrive at the above probabilities.

EXHIBIT 6-7
Cross-Impact Analysis: An Example

<i>Event</i>	<i>Probability of Occurrence</i>	<i>Impact</i>				
		<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>
a. Requiring that all ad claims be substantiated	0.5					0.1*
b. Publishing corporate actions that endanger workers or environment	0.4	0.7**				
c. Disclosing lobbying efforts in detail	0.4					
d. Reducing a company's right to fire workers at will	0.1					
e. Eliminating inside directors	0.6					

*This means that requiring that all claims be substantiated has no effect on the probability of Event d.

**This means that if publishing corporate actions that endanger workers or the environment occurs (probability 0.4), the probability of requiring that all ad claims be substantiated increases from 0.5 to 0.7.

delphi panel. To further sharpen the analysis, whether the impact of an event on other events will be felt immediately or after a certain number of years may also be determined.

Cross-impact analysis provides the "time" probability of the occurrence of an event and indicates other key events that may be monitored to keep track of the first event. Cross-impact analysis is more useful for project-level scanning than for general scanning.

To relate environmental trends to strategy, consider the following environmental trends and strategies of a cigarette manufacturer:

Trends

- T₁: Requiring that all ad claims be substantiated.
- T₂: Publishing corporate actions that endanger workers or the environment.
- T₃: Disclosing lobbying efforts in detail.
- T₄: Reducing a company's right to fire workers at will.
- T₅: Eliminating inside directors.

Strategies

- S₁: Heavy emphasis on advertising, using emotional appeals.
- S₂: Seasonal adjustments in labor force for agricultural operations of the company.
- S₃: Regular lobbying effort in Washington against further legislation imposing restrictions on the cigarette industry.
- S₄: Minimum number of outside directors on the board.

The analysis in Exhibit 6-8 shows that Strategy S₁, heavy emphasis on advertising, is most susceptible and requires immediate management action. Among

EXHIBIT 6-8

Matrix to Determine the Impact of Selected Trends on Different Corporate Strategies

Trends	Strategies				Impact (I _i)	
	S ₁	S ₂	S ₃	S ₄	+	-
T ₁	-8	0	+2	-2		8
T ₂	-4	-2	-6	0		12
T ₃	0	+4	-4	+2	2	
T ₄	0	-4	0	+6	2	
T ₅	-2	+6	+4	+2	10	
	+	-	4	-	8	
	-	14	-	4	-	

Scale

+8		Critical
+6	<i>Enhance the implementation of strategy</i>	Major
+2		Significant
+2		Slight
0		No effect
-2	<i>Inhibit the implementation of strategy</i>	Slight
-4		Significant
-6		Major
-8		Critical

the trends, Trend T₅, eliminating inside directors, will have the most positive overall impact. Trends T₁ and T₂, requiring that all ad claims be substantiated and publishing corporate actions that endanger the environment, will have a devastating impact. This type of analysis indicates where management concern and action should be directed. Thus, it will be desirable to undertake forecasts of Trends T₁ and T₂. The forecasts may predict when the legislation will be passed, what will be the major provisions of the legislation, and so on. Three different forecasts may be obtained:

1. Extremely unfavorable legislation.
2. Most probable legislation.
3. Most favorable legislation.

Three different scenarios (using three types of forecasts) may be developed to indicate the impact of each trend. This information may then be passed on to product/market managers for action. Product/market managers may repeat Steps 4 through 7 (see Exhibit 6-5), studying selected trend(s) in depth.

ORGANIZATIONAL ARRANGEMENTS AND PROBLEMS

Corporations organize scanning activity in three different ways: (a) line managers undertake environmental scanning in addition to their other work; (b) scanning is made a part of the strategic planner's job; (c) scanning responsibility is instituted in a new office of environmental scanning.

Structuring Responsibility for Scanning

Most companies use a combination of the first two types of arrangements. The strategic planner may scan the corporate-wide environment while line managers concentrate on the product/market environment. In some companies, a new office of environmental scanning has been established with a responsibility for all types of scanning.²⁵ The scanning office undertakes scanning both regularly and on an ad hoc basis (at the request of one of the groups in the company). Information scanned on a regular basis is passed on to all in the organization for whom it may have relevance. For example, General Electric is organized into sectors, groups, and SBUs. The SBU is the level at which product/market planning takes place. Thus, scanned information is channeled to those SBUs, groups, and sectors for which it has relevance. Ad hoc scanning may be undertaken at the request of one or more SBUs. These SBUs then share the cost of scanning and are the principal recipients of the information.

The environmental scanner serves to split the work of the planner. If the planner already has many responsibilities and if the environment of a corporation is complex, it is desirable to have a person specifically responsible for scanning. Further, it is desirable that both planners (and/or scanners) and line managers undertake scanning because managers usually limit their scanning perceptions to their own industry; that is, they may limit their scanning to the environment with which they are most familiar. At the corporate level, scanning should go beyond the industry.

Whoever is assigned to scan the environment should undertake the following six tasks:

1. **Trend monitoring**—Systematically and continuously monitoring trends in the external environments of the company and studying their impact upon the firm and its various constituencies.
2. **Forecast preparation**—Periodically developing alternative scenarios, forecasts, and other analyses that serve as inputs to various types of planning and issue management functions in the organization.
3. **Internal consulting**—Providing a consulting resource on long-term environmental matters and conducting special future research studies as needed to support decision-making and planning activities.
4. **Information center**—Providing a center to which intelligence and forecasts about the external environment from all over the organization can be sent for interpretation, analysis, and storage in a basic library on long-range environmental matters.
5. **Communications**—Communicating information on the external environment to interested decision makers through a variety of media, including newsletters, special reports, internal lectures, and periodic analyses of the environment.

6. **Process improvement**—Continually improving the process of environmental analysis by developing new tools and techniques, designing forecasting systems, applying methodologies developed elsewhere, and engaging in a continuing process of self-evaluation and self-correction.

Successful implementation of these tasks should provide increased awareness and understanding of long-term environments and improve the strategic planning capabilities of the firm. More specifically, environmental inputs are helpful in product design, formulation of marketing strategies, determination of marketing mix, and research and development strategies.

In addition, the scanner should train and motivate line managers to become sensitive to environmental trends, encouraging them to identify strategic versus tactical information and to understand the strategic problems of the firm as opposed to short-term sales policy and tactics.

Time Horizon of Scanning

Scanning may be for a short term or a long term. Short-term scanning is useful for programming various operations, and the term may last up to two years. Long-term scanning is needed for strategic planning, and the term may vary from three to twenty-five years. Rarely does the term of scanning go beyond twenty-five years. The actual time horizon is determined by the nature of the product. Forest products, for example, require a longer time horizon because the company must make decisions about tree planting almost twenty-five years ahead of harvesting those trees for lumber. Fashion designers, however, may not extend scanning beyond four years. As a rule of thumb, the appropriate time horizon for environmental scanning is twice as long as the duration of the company's strategic plan. For example, if a company's strategic plan extends eight years into the future, the environmental scanning time horizon should be sixteen years. Likewise, a company with a five-year planning horizon should scan the environment for ten years. Presumably, then, a multiproduct, multimarket company should have different time horizons for environmental scanning. Using this rule of thumb, a company can be sure not only of discovering relevant trends and their impact on its products/markets but also of implementing necessary changes in its strategy to marshal opportunities provided by the environment and to avert environmental threats.

Discussed below are the major problems companies face in the context of environmental scanning.²⁶ Many of these problems are, in fact, dilemmas that may be attributed to a lack of theoretical frameworks on the subject.

1. The environment per se is too broad to be tracked by an organization; thus, it is necessary to separate the relevant from the irrelevant environment. Separating the relevant from the irrelevant may not be easy since, in terms of perceptible realities, the environment of all large corporations is as broad as the world itself. Therefore, a company needs to determine what criteria to develop to select information on a practical basis.
2. Another problem is concerned with determining the impact of an environmental trend, that is, with determining its meaning for business. For example,

- what does the feminist movement mean for a company's sales and new business opportunities?
3. Even if the relevance of a trend and its impact are determined, making forecasts of the trend poses another problem. For example, how many women will be in managerial positions ten years from now?
 4. A variety of organizational problems hinder environmental scanning. Presumably, managers are the company's ears and eyes and therefore should be good sources for perceiving, studying, and channeling pertinent information within the organization. But managers are usually so tied up mentally and physically within their specific roles that they simply ignore happenings in the environment. The structuring of organizations by specialized functions can be blamed for this problem to a certain extent. In addition, organizations often lack a formal system for receiving, analyzing, and finally disseminating environmental information to decision points.
 5. Environmental scanning requires "blue sky" thinking and "ivory tower" working patterns to encourage creativity, but such work perspectives are often not justifiable in the midst of corporate culture.
 6. Frequently top managers, because of their own values, consider dabbling in the future a waste of resources; therefore, they adopt unkind attitudes toward such projects.
 7. Many companies, as a matter of corporate strategy, like to wait and see; therefore, they let industry leaders, the ones who want to be first in the field, act on their behalf.
 8. Lack of normative approaches on environmental scanning is another problem.
 9. Often, a change is too out of the way. It may be perceived, but its relationship to the company is not conceivable.
 10. It is also problematic to decide what department of the organization should be responsible for environmental scanning. Should marketing research undertake environmental scanning? How about the strategic planning office? Who else should participate? Is it possible to divide the work? For example, the SBUs may concentrate on their products, product lines, markets, and industry. The corporate level may deal with the rest of the information.
 11. Often, information is gathered that is overlapping, leading to a waste of resources. There are frequently informational gaps that require duplication of effort.

SUMMARY

The environment is ever-changing and complex; thus firms must constantly scan and monitor it. Environmental scanning may be undertaken at three levels in the organization: corporate level, SBU level, and product/market level. This chapter approaches scanning primarily from the SBU viewpoint. The environments discussed are technological, political, economic, social, and regulatory.

Environmental scanning evolves over a long haul. It is sufficient, therefore, to make a humble beginning rather than designing a fully structured system.

The impact of different environments on marketing strategy was illustrated by numerous examples. A step-by-step procedure for scanning the environment was outlined. A systematic approach to environmental scanning, using such techniques as trend-impact analysis, cross-impact analysis, and the delphi method,

was illustrated. Feasible organizational arrangements for environmental scanning were examined, and problems that companies face in their scanning endeavors were discussed.

DISCUSSION QUESTIONS

1. Explain the meaning of environmental scanning. Which constituents of the environment, from the viewpoint of a corporation, require scanning?
2. Illustrate with examples the relevance of technological, political, economic, social, and regulatory environments in the context of marketing strategy.
3. Who in the organization should be responsible for scanning the environment? What role may consultants play in helping corporations in their environmental scanning activity?
4. Explain the use of trend-impact analysis and cross-impact analysis with reference to environmental scanning.
5. How may the delphi technique be useful in the context of environmental scanning? Give an example.
6. What types of responsibilities should be assigned to the person in charge of environmental scanning?
7. How may managers be involved in environmental scanning?

NOTES

- 1 Richard Gibson, "Super-Cheap and Midpriced Eateries Bite Fast-Food Chains from Both Sides," *The Wall Street Journal* (22 June 1990): B1.
- 2 Francis Joseph Aguilar, *Scanning the Business Environment* (New York: Macmillan Co., 1967), 40.
- 3 Subhash C. Jain, "Environmental Scanning: How the Best Companies Do It," *Long Range Planning* (April 1984): 117-28.
- 4 Harold E. Klein and Robert E. Linneman, "Environmental Assessment: An International Study of Corporate Practice," *Journal of Business Strategy* (Summer 1984): 66-92. Also see Anil Menon and P. Rajan Varadarajan, "A Model of Marketing Knowledge Use Within Firms," *Journal of Marketing* (October 1992): 53-71.
- 5 "What's Foiling the Aluminum Can," *Business Week*, (6 October 1997): 106.
- 6 "Shop-Till-You-Drop at the Touch Of a Button," *Financial Times* (9 June 1994): 11.
- 7 Richard N. Foster, *Innovation: The Attacker's Advantage* (New York: Summit Books, 1986).
- 8 "Electric Cars in California," *Business Week* (1 October 1990): 40.
- 9 Alex Taylor III, "Rough Road Ahead," *Fortune*, (17 March 1997): 115.
- 10 Anne B. Fisher, "What Consumers Want in the 1990s," *Fortune* (29 January 1990): 108.
- 11 Raju Narisetti, "P&G, Seeing Shoppers Were Being Confused, Overhauls Marketing," *The Wall Street Journal*, (15 January 1997): A1.
- 12 Howard Schlossberg, "Report Says Environmental Marketing Claims Level Off," *Marketing News* (24 May 1993): 12.
- 13 J. Brooke Aker and Cornelia Hanbury, "The Changing Concept of Home," *The Futures Group Outlook* (December 1994): 2.
- 14 "Real Men Buy Paper Towels, Too," *Business Week* (9 November 1992): 75.
- 15 See Stan Rapp and Thomas L. Collins, *Beyond Maxi-Marketing: The New Power of Caring And Daring* (New York: McGraw-Hill, Inc., 1994), 10-11.

- ¹⁶ "The Time Compressed Shopper," *Marketing Insights* (Summer 1991): 36.
- ¹⁷ *Time* (7 March 1988): 84.
- ¹⁸ "Yolkless Dunkin Donuts," *Business Week* (8 April 1991): 70.
- ¹⁹ Richard Gibson, "Lean and Mean: Hardee's Joins Low-Fat Fray," *The Wall Street Journal* (15 July 1991): B1. Also see Eleena De Lisser, "Taco Bell, Low-Price King, Will Offer Low-Fat Line," *The Wall Street Journal* (6 February 1995): B1.
- ²⁰ John B. Hinge, "Some Companies Serve Up Lighter Liquor," *The Wall Street Journal* (25 April 1991): B1. See also "Changing the Game," *Marketing Insights* (Summer 1990): 68–81.
- ²¹ Trish Hall, "Americans Drink Less, and Makers of Alcohol Feel a Little Woozy," *The Wall Street Journal* (14 March 1984): 1; and Allan Luks, "Dealcoholized Beverages: Changing the Way Americans Drink," *The Futurist* (October 1982): 44–49. See also "The Spirited Battle for Those Who Want to Drink Light," *Business Week* (16 June 1986): 84; and Michael Rogers, "A Sales Kick from Beer without the Buzz," *Fortune* (23 June 1986): 89.
- ²² Murray L. Weidenbaum, "The Future of Business/Government Relations in the United States," in *The Future of Business*, ed. Max Ways (New York: Pergamon Press, 1978), 50. See also Robert Reich, "The Fourth Wave of Regulation," *Across the Board* (May 1982).
- ²³ John Greenwald, "Frito-Lay Under Snack Attack," *Time*, (10 June 1996): 62–63.
- ²⁴ Paul B. Carroll, "Computer-Ordering Method Helps Newcomer Blossom," *The Wall Street Journal* (22 January 1991): B2. See also Bill Saportio, "Are IBM and Sears Crazy? or Canny?" *Fortune* (28 September 1987): 74.
- ²⁵ See R. T. Lenz and Jack L. Engledow, "Environmental Analysis Units and Strategic Decision-Making: A Field Study of Selected Leading-Edge Corporations," *Strategic Management Journal* 7 (1986): 69–89. See also *TFG Reports* (November 1990).
- ²⁶ See Hugh Courtney, Jane Kirkland, and Patrick Viguerie, "Strategy Under Uncertainty," *Harvard Business Review*, (November–December, 1997).

APPENDIX | *Scanning Techniques*

Traditionally, environmental scanning has been implemented mainly with the use of conventional methods, including marketing research, economic indicators, demand forecasting, and industry studies. But the use of such conventional techniques for environmental scanning is not without pitfalls. These techniques have failed to provide reliable insights into the future. Discussed below are a variety of new techniques that have been adapted for use in environmental scanning.

Extrapolation Procedures

These procedures require the use of information from the past to explore the future. Obviously, their use assumes that the future is some function of the past. There are a variety of extrapolation procedures that range from a simple estimate of the future (based on past information) to regression analysis.

<i>Historical Analogy</i>	Where past data cannot be used to scan an environmental phenomenon, the phenomenon may be studied by establishing historical parallels with other phenomena. Assumed here is the availability of sufficient information on other phenomena. Turning points in the progression of these phenomena become guideposts for predicting the behavior of the phenomenon under study.
<i>Intuitive Reasoning</i>	This technique bases the future on the “rational feel” of the scanner. Intuitive reasoning requires free thinking unconstrained by past experience and personal biases. This technique, therefore, may provide better results when used by freelance think tanks than when used by managers on the job.
<i>Scenario Building</i>	This technique calls for developing a time-ordered sequence of events bearing a logical cause-and-effect relationship to one another. The ultimate forecast is based on multiple contingencies, each with its respective probability of occurrence.
<i>Cross-Impact Matrices</i>	<p>When two different trends in the environment point toward conflicting futures, this technique may be used to study these trends simultaneously for their effect. As the name implies, this technique uses a two-dimensional matrix, arraying one trend along the rows and the other along the columns.</p> <p>Some of the features of cross-impact analyses that make them attractive for strategic planning are that (a) they can accommodate all types of eventualities (social or technological, quantitative or qualitative, and binary events or continuous functions), (b) they rapidly discriminate important from unimportant sequences of developments, and (c) their underlying rationale is fully retraceable from the analysis.</p>
<i>Morphological Analysis</i>	This technique requires identification of all possible ways to achieve an objective. For example, the technique can be employed to anticipate innovations and to develop optimum configurations for a particular mission or task.
<i>Network Models</i>	There are two types of network methods: contingency trees and relevance trees. A contingency tree is simply a graphical display of logical relationships among environmental trends that focuses on branch-points where several alternative outcomes are possible. A relevance tree is a logical network similar to a contingency tree but is drawn in a way that assigns degrees of importance to various environmental trends with reference to an outcome.
<i>Missing-Link Approach</i>	The missing-link approach combines morphological analysis and the network method. Many developments and innovations that appear promising and marketable may be held back because something is missing. Under these circumstances, this technique may be used to scan new trends to see if they provide answers to any missing links.

Model Building

This technique emphasizes the construction of models following deductive or inductive procedures. Two types of models may be constructed: phenomenological models and analytic models. Phenomenological models identify trends as a basis for prediction but make no attempt to explain underlying causes. Analytic models seek to identify underlying causes of change so that future developments may be forecast on the basis of a knowledge of their causes.

Delphi Technique

The delphi technique is the systematic solicitation of expert opinion. Based on reiteration and feedback, this technique gathers opinions of a panel of experts on happenings in the environment.