Taking Strategy Cues from Mother Nature

BY THEODORE MODIS

Like the weather, businesses go through seasons, and the right strategy can help a business weather the season it's in. The wrong one can be as useful as a fur coat in July.

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Products, companies, and entire industries experience fluctuations like daily changes in the weather, but at the same time, they go through seasons in a cyclical way. The mobile electronic equipment industry has shown, during the past couple of years, exponential growth characteristic of a season like spring. Consulting and software firms find themselves in summer, when the living is easy and the profits are high. But traditional computer manufacturers from the biggest (IBM, Digital, Unisys) to the smaller (Cray, Tandy, Commodore) are tightening their belts as growth rates hover around or below zero, making the season look at best like winter.

Borrowing images from biology to fit the marketplace is not new. Enterprises resemble living organisms. They are born, mature, get married, have children, grow old, and eventually die or become prey to a voracious predator. But these metaphors are rather simple—economists and even physicists have been applying more sophisticated scientific notions, such as that of periodic harmonic motion and Darwin's theory of evolution, to manmade products since the turn of the century. In 1918, Alfred J. Lotka accurately predicted the ultimate size of the American railway network by using mathematical formulas from biology. At about the same time, Nikolai D. Kondratieff claimed to have detected a long economic "wave" with a period of 50 to 60 years, a claim that scored high points in popularity when the stock market crashed in 1987.

For most of this century, scientists have not left economists at peace. Today, scientists of chaos theory argue that equilibrium and orderly growth in markets, as in nature, are deceptive surface appearances and that markets actually move in random, often unpredictable, patterns. In his best-selling book *Chaos*, James Gleick explains that chaos fans are not interested in steady growth processes. They concentrate on the dramatic, random fluctuations that occur, say, from day to day while the growth rate for the month averages zero. Still, through fractal structures (popularized via beautiful computer-made pictures), chaos scientists have succeeded in extracting some order out of randomness.

Many of these theories are echoed in the preachings of management gurus, who sometimes give contradicting messages. Do you know of companies investing in business process reengineering *and* total quality management at the same time? Have you reconciled the merits of powerful leadership with those of employee empowerment and self-managed teams?

Recently, advocates of centralized control and vertical integration have become rather quiet. Instead we hear about discrete business units, focus on core competencies, and horizontal corporations. These shifts do not come about from recent conceptual breakthroughs in the theory of doing business. They are simply reactions to the economic climate and its seasonal variation. Throughout history, periods of bureaucracy and control have given way to periods of innovation and entrepreneurship.

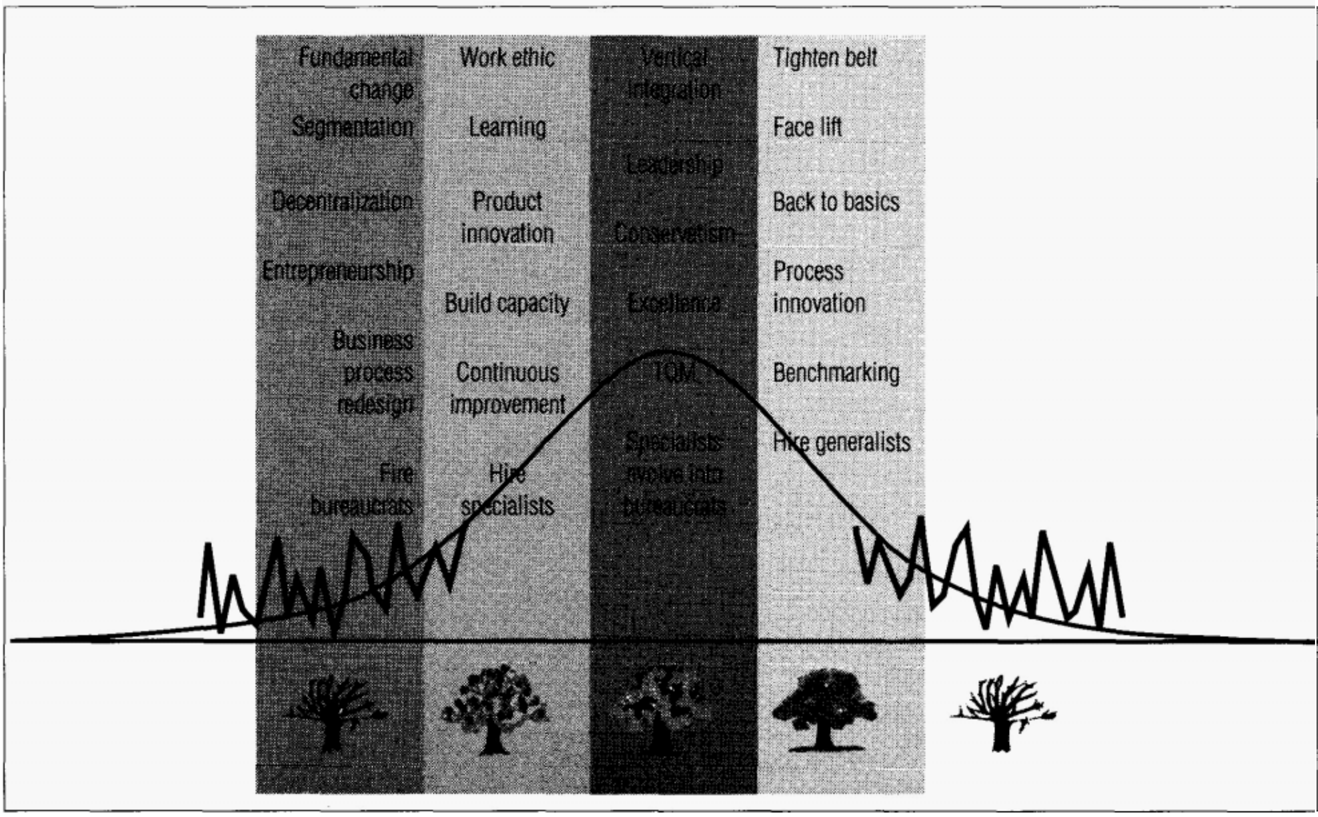
Like scientists, strategic planners can apply the laws of nature to their businesses to predict changes in product and business cycles and to time the appropriate responses—whether it's reengineering, benchmarking, total quality management, or decentralization.

PRODUCT CYCLES AS SEASONS

For a product, a season's length may be six months to a year. For an industry, it may be five to ten years. For the world economy cycling through 50-year "waves," a season may be 15 years long. But in all cases, there are four seasons, and the main characteristics of each season are the same.

Any experienced marketer is familiar with the fact that new-product introduction is invariably accompanied with a drop in the overall sales revenue. It is naive to attribute this to poor product launchings. The period of product substitution—when a new product is introduced and an old one is phased out—seems to be inherently associated with a drop in revenue. Advocates of ultra-rapid product succession have tried—and failed—to find remedies to ensure steady revenue growth, and some marketers believe that they can revive a fading product by repackaging,

Figure 1: The Seasons of Business



advertising, price cutting, and the like. A hard fact of life, though, is that most products naturally go through a phasing-out process, which may be futile to fight. As for how rapidly companies should cycle products, we may find an answer in physics.

Physicists have applied harmonic motion, which is based on the swing of the pendulum, to product cycles. They have come up with a chart, which resembles a sine wave, to indicate when a new product should be introduced based on the life cycle of the old product. The wave indicates that a new product should penetrate its market by 1.4% when the old product has filled 92.7% of its own market. In more simple terms, the new product must be launched during the fall season of the product it is replacing (no wonder farmers sow in autumn).

The springtime of the new product is the time for investing in the production capacity it will require during its summer, as well as the time for investing in R&D for new products to replace it during its fall. It is also the time to begin a continuous improvement program—a rote, methodical process to ensure the product's quality.

Not so in winter. I was explaining to a Geneva bank director recently that winter is the time to fire bureaucrats and hire Leonardo da Vincis—cross-disciplinary, well-rounded men and women who stand a better chance than specialists to come up with new, revolutionary ideas for profitable business. "Firing bureaucrats is exactly what we have to do, sir," he exclaimed. "Could you please tell us *how* to do it?" Two months later, I heard that the man had been fired!

Yet, as strange as it may sound, seeing your specialists progressively evolve into bureaucrats is a good sign. It is one indication that summer is setting in. The word "bureaucrat" carries a negative connotation, but if we call them process managers instead, we realize that they provide an important function during times of high growth and prosperity. It is in the season of summer that enterprises become successful, centralized, and conservative (no one tampers with something that works well), and in need of a clockwork operation. The fine-tuning of a total quality management program is particularly appropriate for a summer season.

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SUMMER FIX-UPS

One would hardly claim that being second best yields a competitive advantage. But often when two competing products are launched simultaneously, the balance eventually tilts in favor of the "lucky" one and not necessarily the better one. For example, when videocassette recorders were first introduced, the market was split between VHS and Beta. The two market shares fluctuated early on because of circumstances, "luck," or marketing tactics. But soon, the market tilted in favor of VHS despite claims that Beta was technically superior. There is another example from the computer industry: Connoisseurs of personal computers value Apple products more highly than IBM and its clones, but the market-share gains of the latter tilt standardization in their favor.

This is nothing new. Last century, Alfred Marshal wrote that whatever firm first gets a good start will corner the market. To get a good early start a product has to appeal to the masses rather than to the elite, and that argues for postponing sophistication and refinements for a later season. Therefore, companies should plan product enhancements to appear in the product's summer.

Summer is also the time for vertical integration. To expand market share further during a high-growth period, you should not hesitate to sell all things to all people. Advertising budgets should swell and strategies should become long term. The American steel industry has enjoyed the longest summer season. For the better part of this century, continuous success made the industry conservative and immutable. But more recently, the industry has been shaken by the rising popularity of competitive new materials. Today, the steel industry worldwide is undergoing reorganization and process innovation, a clear consequence of losing ground—and a clear sign that fall has set in.

You are probably all too familiar with the instinctive human reaction to loss of market share: denial, blame, panic. These are the hallmarks of having entered the fall season. The usual rescue operations include belt-tightening, face-lifting, and a back-to-basics concentration on core competencies. Fall is the season for benchmarking, to find out what you are not doing quite right. The company divests and focuses on strategic accounts. The more market share deteriorates, the more management experiments with new products or explores new directions, which may be picked at random.

It is during the chaos of winter when profound changes take place. Employees are anxious, confused, and frustrated. Despite low morale, however, innovation and creativity should be at a high, as is competition, which makes survival the name of the game. Winter should be a creative time—the more new products, ideas, or ventures that are tried, the better the chance that some of them will survive and grow. Enterprises in winter should decentralize, focus on core competencies, and organize themselves horizontally. The business should become culture-driven (experiencing forces from the bottom up), and it should pursue niche markets with short-term strategies.

If an entire industry is in winter, it must evolve by adapting itself to penetrate the maximum number of new niches. The microprocessor industry demonstrated exceptional ability during its winter years to come up with new, unexpected uses for computer chips in an ever-increasing number of applications. In the past 10 years, this industry has enjoyed the steeply rising growth rates that characterize spring.

With the world economy presently in winter, most large enterprises are breaking up into smaller ones. Dupont reorganized itself by creating 22 autonomous strategic business units. IBM did something similar in the U.K. with 13 autonomous business units, but furthermore, created entirely new companies for the PC division and some of the services. In contrast, industries that find themselves in a summer-like season, such as the media industry, are becoming flooded with corporate alliances, mergers, acquisitions, and other unifying mechanisms.

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Company moves become telltale signals for the season they are traversing. When we read that chemical empires in continental Europe such as Bayer and Hoechst of Germany and Rhone-Poulenc of France have spun off fibers, bulk and specialty chemicals, pharmaceuticals, and agricultural products into independent subsidiaries, we can safely conclude that the European chemical industry is having difficulty even if we are not knowledgeable about this industry. On the other hand, the announcement of impressive long-range plans by MCI Communications Corporation implies a healthy balance sheet. Long-range strategies are characteristic of a fair-weather business season.

SURVIVING CORPORATE WINTERS

In nature, spring follows winter automatically, but in the marketplace, people tend to interfere, constructively sometimes, destructively others times. For example, implementing a TQM initiative in the wrong season could hasten the approach of the product's winter. Or trying to revive a product that has reached its winter could prove futile and wasteful. But how should management respond when an entire company reaches its winter?

Turning a company around is an almost impossible task, because it is like reviving a fading, autumn-stage product. Yet most companies embark on this affair. They reorganize, replace much of their personnel, and invariably replace the management team. But in the end, only a few companies succeed.

Product substitution succeeds only for truly differentiated products. Similarly, company turnarounds succeed only if the changes are so profound that the transformation is tantamount to having created a different company. That is why the chief executive—sometimes the founder—usually has to go. The old culture has to die in order for the new one to grow. The board's primary concern should be whether the planned changes will transform the organization into a new "species."

In this light, the merger of Bouroughs and Sperry, two winter-bound companies, into Unisys back in 1986 was doomed for two reasons. First, both companies at the time were experiencing difficulties—a season of fall—so that merging was not the recommended strategy. Second, there was no radical reshuffling of personnel or cultural change to ensure a transformation of the company. The consequences could have been predicted.

Usually companies have failed in their turnaround efforts because their strategic managers did not anticipate when the seasons would change, so they could not plan. They didn't recognize the telltale signs in the industry, economy, or marketplace. Perhaps more important, they failed to pay attention to the season of each department, function, service, or even product, as they may not all be in the same one. Like a marketer caring for a portfolio of products, top management has to nurse its business units individually. Some units may need to be organized horizontally, others in stove pipes, some may be in need of innovation and redesign, others may be in need of tighter control and total quality management. The worst scenario is when a newly appointed chief executive, convinced about the merits of empowerment, entrepreneurship, core competencies, and business process reengineering, tries to impose his or her vision on a business unit that finds itself in the early growth phases of a promising market.

During the late 1980s and the 1990s, major computer manufacturers such as IBM and DEC expanded their operations into such areas as consulting. These new activities have growth characteristics of their own and find themselves in a different season from hardware sales. Consequently, the management of the two divisions may have to be quite different, and sometimes awkwardly so. With products in fall and services in spring, it is a relatively easy decision to divest products in order to invest in services. But it is less obvious for the company's management to move toward entrepreneurship and segmentation for the former, and at the same time, toward integration and centralization for the latter. This situation may demand a clean break of the consulting activities into a separate company, as Arthur Andersen did when it created Andersen Consulting.

For Further Reading

Kenneth J. Arrow and David Pines in *The Economy as an Evolving Complex System*, edited by Philip W. Anderson, Addison-Wesley, 1988.

Peter F. Drucker, *Post-Capitalist Society*, New York: The Free Press, 1992.

Richard N. Foster, *Innovation the Attacker's Advantage*, London: Macmillan, 1986.

James Gleick, *Chaos*, New York: Viking, 1988.

Charles Handy, *The Empty Raincoat*, London: Hutchinson, 1994

George Land and Beth Jarman, *Break-Point and Beyond*, New York: HarperBusiness, 1992

Theodore Modis, *Predictions: Society's Telltale Signature Reveals the Past and Forecasts the Future*, New York: Simon & Schuster, 1992.

Marc van der Erve, *Evolution Management*, Oxford, England: Butterworth-Heinemann Ltd., 1994.

M. Mitchell Waldrop, *Complexity: The Emerging Science at the Edge of Order and Chaos*, New York: Simon & Schuster, 1992.

TIMING IS EVERYTHING

In his book *The Empty Raincoat*, Charles Handy warns managers to be vigilant for the turning point, the time when summer comes to an end and a declining growth rate is easy to overlook. But it is as inefficient to continuously gear for disaster as it is to assume that the good days will last forever. It is possible, however, to anticipate the turning point and prepare for its consequences. Closely examining the evolution of a company's performance can reveal when business seasons will turn, and where the company happens to be at the present time. This in turn will dictate the appropriate actions to take. If management understands and tunes into this natural progress through seasons, it can avoid mistakes that waste energy, resources, and opportunities.

While many of the correct strategies to undertake in a given season are intuitive and correspond to familiar management actions, the critical factor is timing. Failures result from good decisions that are ill-timed.

By plotting a time scale, strategic planners can predict season changes and plan accordingly. The elements of an enterprise—products, departments, business units, and markets—generally cease to exist, rather than evolve, at the end of their life cycles. By anticipating the time when their seasons will change, strategic planners can implement substitution processes that are more likely to make the enterprise's rebirth possible.

Try the following three steps to plot time scales for your company's products, departments, and even its overall corporate life cycle. First, to the best of your ability, make an educated guess about what season you are in and how long its duration is likely to be. Second, go back two seasons and identify those strategies that proved successful at that time. Finally, adopt and recommend the opposite of those strategies. ●