Gagging on Chaos

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Innovation in large organizations cannot mean a relaxation of bureaucracy.

In his recent best-seller, *Thriving on Chaos* (1989), Tom Peters decries the lack of product innovation in the typical North American corporation. There is good reason for Peters and the rest of us to be concerned, if not alarmed: Innovation is critical to the growth and long-term profitability of most North American firms. It is one of the central themes for our society and for technological management during the next few decades.

Unfortunately, innovation remains one of the most poorly undertaken functions within the modern North American organization. Doubts continue to flourish especially about the innovative capacities of the large, diversified firm.

Blame it on bureaucracy. The difficulty large, diversified firms have in generating and sustaining innovation has long been recognized. Excessive hierarchies, lengthy decision making, and oppressive procedure manuals and controls are just some of the all-too-common features typically and frequently cited as being found in these organizations. As a remedy, the conventional wisdom of recent times has been captured in the three Ds: de-bureaucratize, de-layer, and decentralize.

Many of North America's largest organizations—both in the private and public sectors—have taken this war cry to heart. Du Pont has recently restructured itself from 11 layers to four; rumor has it that it is trying to go to three. The U.S. Navy's Air Maintenance facility in California replaced a 600-page policy manual with a short four-page document. Likewise, Worthington Steel seems to be able to operate just by following the "Golden Rule." It seems just about everyone is trying to "empower" everybody else these days.

Logically, these solutions seem to make a lot of sense. They all sound so simple. But are they? As H.L. Mencken once said, "For every complex problem, there is a simple solution—and it's usually wrong!"

It appears that what the experts forgot to tell us on the road to innovation utopia was that there may be a limit to "letting go," that it is possible to "free up" too much, and that "loosening up" the organization to encourage innovation and risk-taking may be the equivalent of taking the bottom can out of an end-of-aisle display. What you get is lots of chaos, but not much else.

There are also some disturbing assumptions underlying the current trend of "glasnost" in the large North American corporation. First, who is to say that there is a seething capitalism waiting to be unleashed? Can ducks, once tamed by the discipline of bureaucracy, be made wild? Will they even fly when confronted with the prospect of their own freedom? Or will they simply yawn and not know what to do?

There also seems to be a belief that there is a significant cadre of talented and inspired (though previously suppressed) innovators waiting for the opportunity to "strut their stuff." However, no organization is made up entirely of Michael Jordans. Most comprise plain ordinary folk—many of whom have been mentally and morally abused by their employers for a long time.

Perhaps the most disturbing assumption of all, however, is the notion that "bureaucracy is bad." One of the principal prescriptions for improving the climate for innovation and intrapreneurship in large corporations is to become less formal in its operations and systems and to reduce the number of rules, policies, procedures, and controls—especially in relation to the firm's established operations (see **Figure 1**). How true is this?

Formal systems and procedures are among the hallmarks of the large organization. They are the way in which a big corporation is managed and controlled. It is hard to imagine one without them. If looseness of control and informality of operations are required to kick-start the innovation engines, then how do you make sure that

you don't flood the engine? After all, letting go can't possibly mean "no control."

Another answer. These comments are not meant to downplay the actions of those seeking new ways to harness the creativity, drive, and commitment to innovation among a large corporation's work force. However, devotees of de-bureaucratization often appear as zealots—ignoring established theory and blinded to the possibility of alternatives for achieving much sought-after ends.

My experience, however, leads me to conclude that there are ways—other than through the complete destruction of the organization's existing formal arrangements and controls—for achieving the innovation results desired. I have seen astonishing innovation accomplished with lots of formal rules, policies, procedures, and discipline—in short, with some good, old-fashioned "bureaucracy."[1]

In the following passages, I will take you through several examples of how bureaucracy and tight controls are facilitating, contributing to, and supporting the innovation efforts in some large, diversified, and well-known corporations. In some instances, bureaucracy is masquerading under some faddish, rehabilitated, or politically correct label—a sort of "flavor-of-the-month" management wisdom. It is bureaucracy nonetheless. The result is a surprisingly tough, disciplined, almost martial arts approach to innovation.

HOW BUREAUCRACY AIDS INNOVATION

All innovations begin with an idea. Many firms worry about the quality and quantity of ideas forthcoming. The problem is that innovation is traditionally accepted as a haphazard and sporadic exercise.

Fortunately, there are several formal processes today that are recognized and credited with improving original thinking, inventing new products, and adding more hustle to a firm's operations. Operating under the generic label of "creative problem solving" (CPS), they are processes designed to bring discipline to the messy madness of innovation. The late Alex Osborn and Edward de Bono are usually credited with popularizing these techniques.

All creative problem solving processes are organized forms of brainstorming that culminate in a formal plan of action. One eight-step CPS model is shown in **Figure 2**. Each CPS step encourages "divergent thinking"—the wild ideas at which most people laugh when they first hear them—and then provides for "convergent thinking"—the techniques for choosing and implementing the best ideas.

Frito-Lay, one of the world's largest and most profitable snack food companies, has used a CPS process developed by consultant Min Basadur (1992) to enhance the effectiveness and efficiency of its operations. The resulting benefits have been significant. As one manager commented:

> In the past, we were one of those analysis/paralysis companies. That meant that we had to make sure that anything innovative we wanted to do was absolutely, positively right and perfect before we even began thinking of talking about it with anyone. We then went the route that was popular at the time and tried to follow the maxim: ready, shoot, aim. All that did was blow a lot of cash—and careers. Today, with CPS, we have a happy medium. We can expose our crazy ideas without exposing ourselves and we have a formal method which ensures that what we decide gets done.

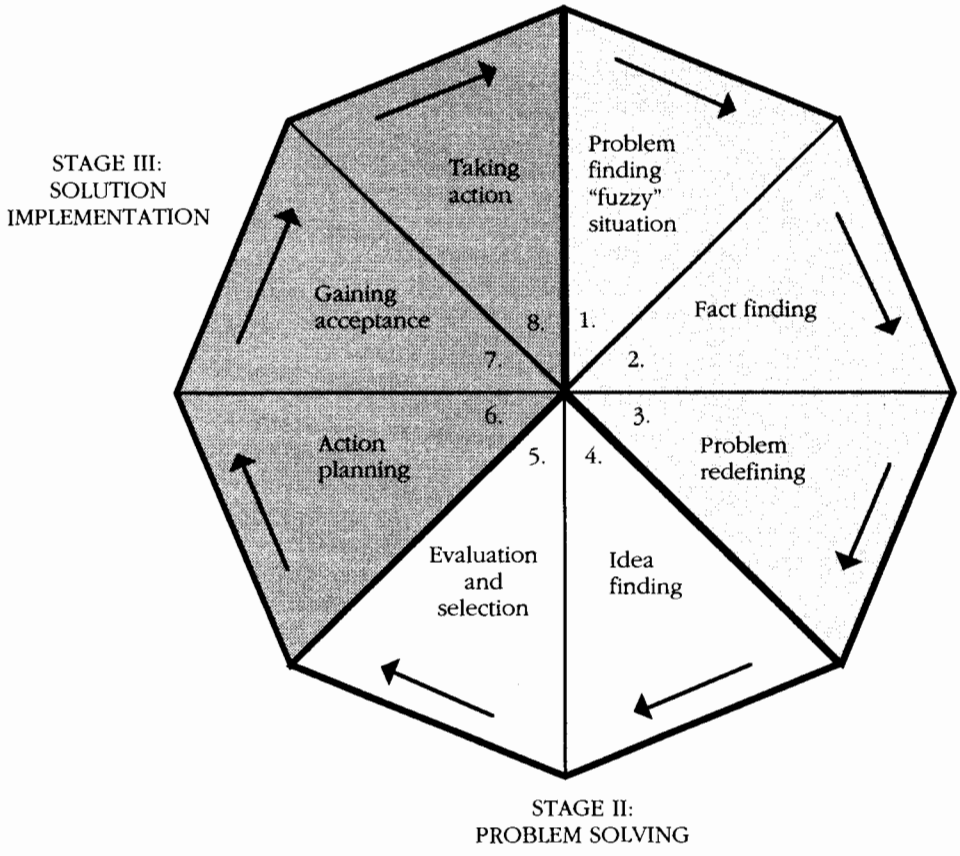
Frito-Lay cites numerous examples of how CPS has produced almost $500 million of savings for the company in little more than eight years. For example, the rollout of a new cheese-topped cracker using CPS is believed to be one of the most efficient in the history of the firm. CPS is also credited with reducing the company's potato cycle time by three years, or 30 percent. Because of these achievements, CPS is now being introduced at Frito's parent, PepsiCo.

A variation on the CPS process exists at General Electric under the name "Workout." This

Figure 1
Managing "New" and "Established" Operations

Variables	*Product Type*	
	New Product	*Established Product*
Rules and procedures	Few	Many
Adherence to rules	Low	High
Subordinate formal job definition	Broad/Low	Narrow/High
Budget tightness	Low	High
Plan/budget detail	Low	High
Written instructions	Few	Many
Reporting frequency	Low	High
Personal contact	Low	High
Customer contact	Low	High
Subordinate autonomy	High	Low
Intolerance for failure	Low	High
Amount of attention	Low	High
Reliance on other formal systems	Low	High
Reliance on other informal systems	Low	High
Overall tightness of control	Low	High

Figure 2
The Simplex CPS Process



process is a formally structured "town hall meeting" in which employees of a GE business unit participate in looking for innovative solutions to long-standing or current problems. The guts of the process—and the key to its success—is that the "boss" responsible for responding to the recommendations is brought in at the end to take only one of two courses of action: (1) to "concur" with the recommendations made (Note: "approving" recommendations is not allowed), or (2) to dispute the employees' proposals when the boss perceives they lack certain information. A formal corporate facilitator also stands ready to intervene should the boss's rate of concurrence become too low.

In one massive exercise, employees at GE's medical system business presented more than 200 recommendations to their plant services manager. In just over two hours, he had made a decision on every one of them—and "concurred" with almost 95 percent right away! Without such a structured process, however, the problems identified would have continued to fester because of inaction. It is hard to imagine a more decisive decision-making system, or one in which decision making is more effectively transferred to the employees themselves. It was a formally structured set of rules and procedures, however, that created the result.

Ensuring New Product "Winners"

Though companies develop formal processes to generate new ideas, there is often no guarantee that in the case of new products the results will be successful. About 30 to 40 percent of all new products launched in the marketplace are eventually judged to be losers. Now, you may say that's not bad. And it wouldn't be, except that companies tend to spend a considerable proportion of their resources on the losers. So the challenge for a firm interested in launching new products (and services) involves simultaneously ensuring that new products selected will be "winners" in the marketplace; eliminating any "losers" that later emerge from the company's project list before considerable time, effort, attention, and money is spent on them; and cycling new products though the company in record time.

It appears that much of the blame for the failure to produce sufficient new product winners can be traced to the quality with which firms select and orchestrate their new product initiatives. Recent research has noted how firms invite failure on their new product projects largely because of the carelessness and lack of rigor with which they execute such fundamental new product activities as market research, business-competitive analysis, and assessment of synergies (Cooper and Kleinschmidt 1987). Faced with this hard evidence, one wonders where all the analysis/paralysis (which many claim is threatening the innovativeness of North American organizations) is occurring. The evidence seems to suggest that perhaps not enough analysis is being done.

Once again, however, it appears that large companies are turning to formally structured

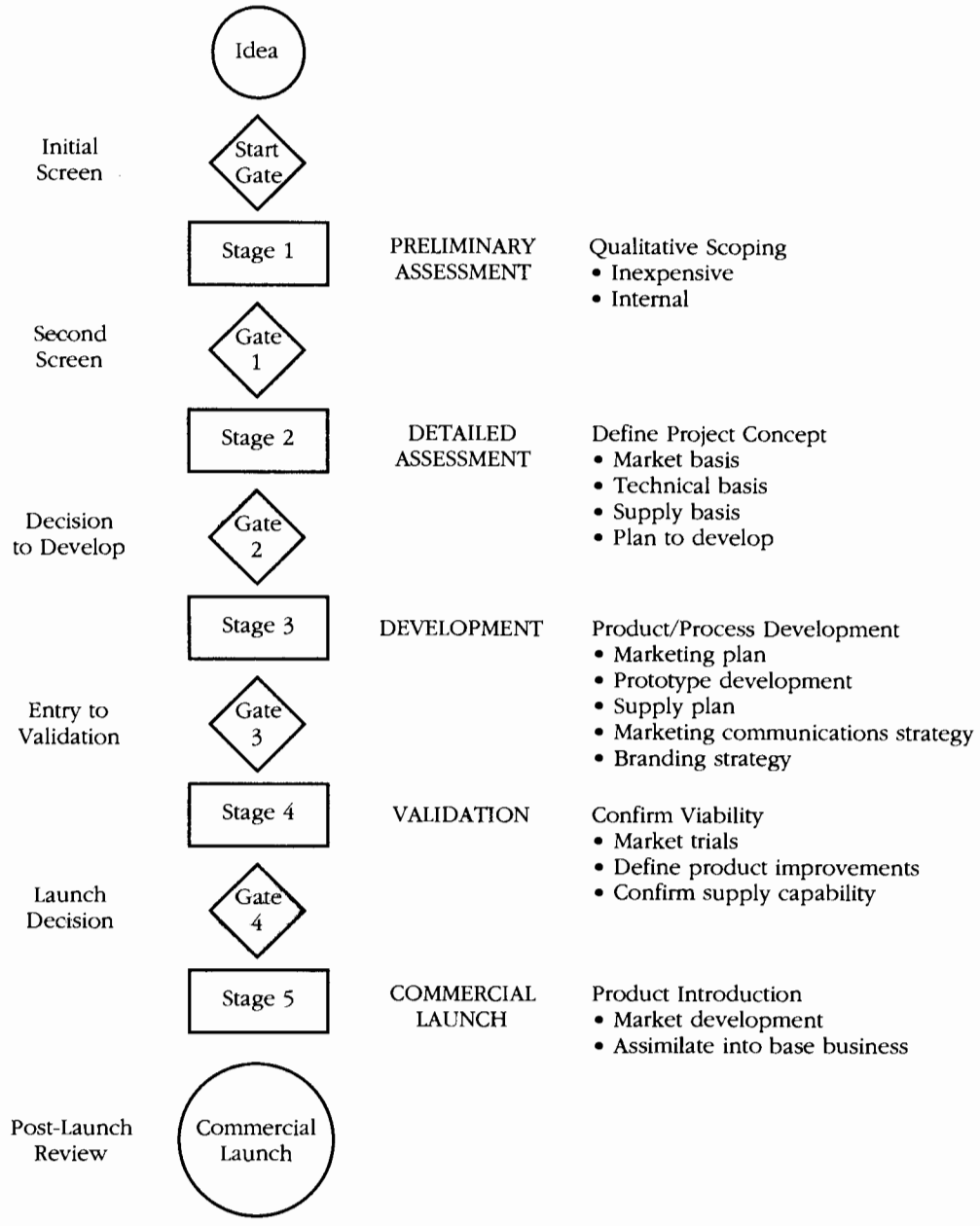
procedures, processes, and systems to achieve the new product success rates they desire. Take the case of Exxon Chemical. Several years ago, the company established the objective of translating more quickly their new product ideas into commercial successes. Given limited resources, and its own disappointing track record, the company developed, with the help of consultant Robert Cooper, a formal and structured process called "stage-gate" to improve the success rate of its polymers new products. Stage-gate is a blueprint—a set of formally prescribed steps and activities—for moving Exxon Chemical's new product projects from idea to launch in a systematic and rigorous fashion. Critical to the process is a set of go/kill decision points (called "gates") through which new product projects must "pass" to proceed to the next "stage" (see **Figure 3**). Each pass represents an increase in the firm's level of formal commitment and willingness to invest in the product.

Exxon Chemical, however, is not alone in developing a formal new product process. Similar formal screening models have been developed at Northern Telecom ("Gating System"), 3M ("New Product Introduction System"), Procter & Gamble ("Product Launch Model), and Polaroid ("Product Delivery Process") with remarkable results. For instance, 3M boasts more than 200 new product entries into the marketplace each year, with 85 percent rated as being very successful in their first year. The company achieves its objective of earning 20 to 25 percent of its current year revenues from new products that did not exist five years previously. Moreover, Northern Telecom reports that with its own "Gating System," the company enjoys more new products (that earn more money) than before the process was introduced. Again, a formal process—part of the bureaucracy—made innovation happen and produced the desired results.

How the Formal Reward System Aids Innovation

For innovation to occur, organizational members involved must become motivated. In the small entrepreneurial firm, much of the reward is psy-

Figure 3
Exxon Chemical Company Product Innovation Process



chic. It's a lot of fun to be part of a small firm that is trying to buck the system and establish new norms. There are also strong feelings of affiliation that come from associating with the leaders, who are often cast as larger-than-life entrepreneurs, innovators, and corporate visionaries. To be sure, these informal rewards still carry a lot a charm and appeal. So it is no wonder critics often challenge large firms to recreate this atmosphere.

Unfortunately, in the case of very large corporations, that is often not possible. Individual organizational members, however, still need to be motivated to achieve the firm's innovation objectives. This is where the formal reward system comes into play—with remarkable results. For example, up until 1989, research at one large Canadian electronics firm tended to be plagued with unmarketable designs and an increasing new product cycle time. To deal with this, senior managers at the company's central lab decided to tie some of their design engineers' annual compensation to the sales performance of the firm's 20 SBUs. The results have been dramatic: design acceptance has increased exponentially, and the time it takes to introduce new products has been reduced by 15 percent.

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ESOPs (or employee stock option plans) are another formal reward device that can have a powerful impact on a firm's innovativeness. The idea behind such plans is that ownership begets commitment—and commitment begets performance. Such plans have been used with dramatic innovation results in organizations as diverse as Lincoln Electric, Worthington Steel, Magna International, and Science Applications International (SAI).

The value of any reward system, however, ultimately lies in its ability to shape and influence the attitudes and mentality of the organization's members toward innovation. The key to making this happen appears to occur when doling out rewards and punishments—punishments that represent more than just the withholding of rewards. As David Clarke, a former senior vice-president of Campbell Soup's international operations, put it: "We tried pretty hard (at Campbell's) to reward those who understood our innovation values and to get rid of those who didn't." He apparently meant it. In 1990, Campbell Soup's turnover of new hires was almost 15 percent.

How Formal Training Breaks Down the Barriers to Innovation

The challenge of creating, managing, and maintaining an innovative organization remains a continuous managerial struggle, whereby "gains" secured can be easily and quickly lost. Another of the critical components for focusing—or refocusing—an organization on innovation rests with its formal training system.

Not just any training will do. It seems that simply telling employees what they must do is one of the worst ways of training. Instead, employees need to know how the organization wants things done and, most important, why these things should be done in a particular way.

At one of Toyota's North American plants, for example, the company spent 13 months formally training its new work force before the first car rolled off the assembly line. To encourage employee creativity, Toyota sought to reduce its level of supervision. But senior management knew that employees needed to understand the responsibilities and obligations this freedom entailed. To achieve this end, employees were formally drilled in ways to find (and not "passed" until they arrived at) "acceptable solutions" to selected problem sets. The objective of this training was to create what one Toyota executive called "independently minded team players." "It's kind of like an ant colony," he said. "We all know what we are expected to do. It's ingrained—almost genetic. Once you have that, you don't need as much supervision any more."

Good training just doesn't develop and instill new skills in employees. It also works on—even emphasizes—the values and attitudes that reflect the way things get done. The situation at Toyota, however, is not unique—nor even uniquely Japanese. At Newell Company (a major U.S. housewares and hardware supplier), for example, managers become "Newellized." Similar situations have been documented for such well-known innovative companies as L.L. Bean, S.C. Johnson, Hewlett-Packard, 3M, and many other major U.S. corporations.

How Formal Structure Facilitates Innovation

Structure is concerned with how firms design and define their employees' roles as well as their reporting, responsibility, and accountability relationships. Traditionally, firms have agonized about whether to adopt functional, divisional, SBU, or matrix structures and how much to centralize or decentralize decision making. Currently, much is being written about the importance of "cross-functional teams" as a means of achieving more innovation, especially with respect to the design and launching of new products. Suppos-

edly, they are more informal and more loosely structured set-ups than found in the typical organizational "boxes." But are they?

Examining the actual experience of companies with such teams suggests just the opposite. In particular, once the decision to create a cross-functional team has been made and the team members selected, there is a strong need to formalize the organization of the team, beginning with the location of the team's members. Surprisingly, it is still common to find large organizations with various new product projects being managed by cross-functional teams where team members are in different locations. For innovation to succeed, it is important that all the relevant players (marketing, design, and manufacturing) be brought into direct contact—together under one roof—to tear down interfunctional communication and attitudinal barriers.

This is what Hughes Aircraft did when it received a $900 million contract for an air defense system in Saudi Arabia. Hughes put all of its electronics experts, software engineers, and others related to the project—500 in total—into one facility. Similarly, Hallmark Cards recently decided to locate together everyone associated with the firm's new product operations in Kansas City. As a result, the team members' communication and understanding improved and the cycle time for many new products has been reduced significantly. These benefits occurred because new card products were handed from team member to team member rather than from department to department.

Once the location of the team has been established, it is important to ensure that the team has the necessary formal and written authority to accomplish its tasks. This is because leaving new team structures poorly defined, with ambiguous roles and nebulous responsibilities, seems to be a recipe for disaster (through political tussling among functional heads, natural jealousies, and NIH—or not-invented-here—feelings). Members of innovation teams must, therefore, be individually and formally empowered—through formal (written and measurable) objectives that cut across functions (quality, service, low cost)—to satisfy their targeted customers. Doing so creates focus, gives team members a common purpose, and creates a context in which they are forced to work together.

Nowhere is the issue of formal authority more critical than in the case of the team's leader. At Toyota the company assigns a person with the title "chief engineer" for each new model. This person's formal job description, however, reads more like that of a typical business unit manager. The chief engineer is in charge of everything: product concept, market size, environmental analysis, buyer preferences, supplier selection, and dealer development—just a few of the key responsibilities. The chief engineer is the czar of a new car model's empire. He is the new model's "champion." Woe betide the luckless manager who should stand in the way. At General Motors, on the other hand, the chief engineer is seen as sort of a eunuch with limited powers. It is no wonder, then, GM's new product cycle time is so lousy—five years compared to Toyota's three-and-one-half years.

How Formal Management Information Systems Facilitate Innovation

The accounting and management information systems of most organizations are often portrayed as among the greatest impediments to innovation and among the greatest contributors to excessive red tape. There is no doubt that the demands of a firm's management information system can appear extreme and even unreasonable. The quantity of information requested can at times appear overwhelming.

In the case of strategic planning systems, it is also sometimes popular to think that, where innovation is concerned, it is impossible to plan. After all, the world changes quickly. And innovation typically occurs under conditions of extreme uncertainty with respect to consumer demand, manufacturing capability, and competitive response. Consequently, it is argued that formal, written plans are a waste of time.

The real problem with management information systems is not so much the volume of information as it is the type of information required and the timing of when it is requested and distributed. Make no mistake: Information, like time, is money. Among leading innovative companies, it is quickly proving to be one of the cheapest and most important (read "strategic") investment decisions a firm can make in the twenty-first century. At Frito-Lay, for example, it is possible for the president to know the sales of specific products (corn chips) in specific regions (Waco, Texas) at specific locations (the Lazy Bar Market) at specific times (daily). Both Newell Company and Wal-Mart also accomplish somewhat similar MIS feats by having daily sales figures shipped directly to their computers from retailers' cash register scanners.

"In their efforts to loosen up and let go, some managers have gone overboard—with the result that their new products are not receiving enough direction, attention, and control."

Having such detailed and specific product information available daily carries tremendous implications and benefits for any firm's innovation activities. For example, inventory is one of a firm's biggest expenses. Having a sophisticated management information system enables a firm to determine relatively quickly whether it has a "winning" or "losing" new product on its hands and to take appropriate action swiftly.

The key to creating innovative and entrepreneurial businesses within big companies, however, lies with a sophisticated computer system keeping careful track of information back at headquarters. At Cypress Semiconductor, for example, CEO T.J. Rogers' computer system allows him to stay abreast of every employee and every team in his fast-moving, decentralized, and constantly changing organization. Each employee maintains a list of 10 to 15 goals, stating when those goals were agreed upon, when they are due, and whether or not they have been met. Rogers claims that he can review the goals of 1,500 employees in four hours each week and that it only takes half an hour each week for employees to update their lists.

If one wants innovation and the hustle that goes with it, it is important to invest in information that tells those responsible what is occurring. Formally written strategic plans for innovation—no matter how chaotic the external/internal environments—allow managers to recall and test previously held assumptions; review progress against objectives (however amorphous and fragile); reaffirm their chosen destinations; and calibrate departures from previous decisions.

Information technology, however, must be deployed to advance an organization's innovation objectives—not simply to satisfy some technological inferiority complex. In the latter instance, the need to satisfy technological starvation is usually met with some kind of bulimic binge (as GM did with robotics through its investments in EDS and Hughes). Possession of information technology, however, does not make one innovative—it may even cripple. Nevertheless, when used adroitly, management information systems are an important tool that enable one to empower—yet still control—the firm's innovators, new product champions, and their associated team members.

How Tight Control Aids Innovation

The popular view holds that tight control of the innovation process reduces the flow of new products. Since 1987, however, I have been involved in a major and ongoing research project examining the nature and degree of control that general managers at different levels within an organization exercise over their new product initiatives. My findings to date appear to suggest just the opposite of this view! In one study of presidential control practices, I found that senior general managers typically exercised tight control over their firm's new products (relative to their established or ongoing brands) and that both the nature and degree of presidential control was strongly correlated with high frequencies of new product introductions (see **Figure 4**). In particular, presidents with "high" new product output situations tended to provide a higher degree of control over new products than those with "low" new product output. They also did this in several distinctive ways.

Among "high new product output firms," for example, presidents appeared to demand a higher frequency of formal reporting from their subordinates on new products than that found in "low output" cases. They tended to write more instructions to subordinates on how they should handle issues related to new product initiatives. Presidents also seemed to push subordinates more to adhere to company rules concerning new prod-

Figure 4
Presidential Control Practices Under "High"/"Low" New Product Frequencies

Control Items	*All Cases (n = 40)*	*New Product Frequency* *High (n = 23)*	*Low (n = 17)*
Rules and procedures			
Adherence to rules		T	
Degree of subordinate job definition	L	L	L
Budget tightness	L	L	L
Amount of plan/budget detail	L		L
Amount of written instructions		T	
Reporting frequency		T	
Frequency of personal contact	T	T	T
Frequency of customer contact			
Degree of decision-making autonomy	T	T	T
Degree of intolerance of failure			T
Amount of attention	T	T	
Reliance on other formal systems			
Reliance on other informal systems			
Control Score	Moderately loose/tight	Very tight	Moderately loose/tight

LEGEND: T = New products managed significantly "tighter" than established products
L = New products managed significantly "looser" than established products

ucts. They thought a lot more, asked a lot more questions, and gave new products a lot more attention and priority during their daily activities. As the president of 3M Canada expressed to me, "If I don't show my staff what my priorities are, if I don't show them that new products are what I am most interested in, then they will set the agenda—a different agenda—for me." Though presidents in the study sample may decentralize decision making and empower their lower-level employees to act, they are still very much involved in (and would appear to exercise a lot of influence over) the decisions actually made.

Figure 4 also shows there was no significant loosening of control among the high new product output organizations in several areas, which is consistent with the philosophy of tight control. Specifically, there were just as many formal rules and procedures, and just as much detail in the formal plans and budgets of the new product projects, as in those of the established brands. Contrary to conventional thinking, the presidents were just as intolerant of failure on their new products as they were on their established brands.

When dealing with "low" new product situations, it seems that presidents may be erring in two very serious ways. First, they appear to be exercising excessively loose control. One indication of this from Figure 4 is the significantly lower amount of detail found in formal product plans when new product output is low. Because of this, information necessary to the proper control of new products is either not being supplied to the presidents or not being requested.

Second, presidents seem to err by exercising excessively *tight* control as well. As can be seen in Figure 4, this appears to happen especially when presidents show an intolerance for failure significantly greater than that exercised over more established brands. In other words, high intolerance for failure may be perfectly acceptable within an organization (as it was in my sample of highly innovative firms) if it does not exceed the norms established for routine operations. Excessive intolerance (intolerance that goes beyond those established limits), on the other hand, destroys the risk-taking spirit so necessary to championing new products.

What these findings suggest is that much of the current discussion on the nature and degree of control within large organizations may be lopsided. Unfortunately, many practitioners appear to have unwisely taken the prescriptions of the innovation gurus too literally. In their efforts to loosen up and let go, some managers have gone overboard—with the result that their new products are not receiving enough direction, attention, and control.

One of the most remarkable benefits resulting from the use of tight control appears to be the increased speed with which new products are brought to market. Conventional wisdom holds that tight control of formal rules and procedures causes delays in new product introductions, so more nimble and less bureaucratic competitors win the race to market. Not so: "More" may actually mean "less" (more formal, rigorous, and comprehensive controls may mean less delay). The formal controls accomplish this by ensuring less recycling (there is less need to recycle poorly executed or mistakenly omitted activities); improving the quality of administration and execution; avoiding costly omissions (thereby eliminating "losers" earlier in the process); and providing better coordination and teamwork in spiriting new products through the company.

The exercise of control, however, is a complex and sophisticated undertaking. To be sure, excessive amounts of formal controls—especially the wrong kind—will kill innovation. The findings from my own research caution that too loose control may cause firms to gag on the chaos that must inevitably result if innovation is pursued in an undisciplined and unbridled fashion.

Tough Taskmasters

The preceding discussion naturally forces one to challenge another sacred cow in the innovation management field: that a manager charged with responsibility for creating and increasing the rate of innovation should be a lively, charismatic cheerleader who entertains and cajoles and is very "hands-off." Conversely, most of the leader-managers I have seen in North America's leading innovative companies have been firm and demanding taskmasters with a strong sense of control. The closer the manager is to the source of the innovation, the tougher and more demanding the person is.

More than anything else, the leaders and managers of innovation set a dizzying pace for the rest of their troops. Finis Conner (of Conner Peripherals—one of the fastest growing companies in the United States) has been known to routinely work 80 hours or more per week. The late Soishiro Honda was found wandering in his labs and on the manufacturing floor more often than in the company's executive suite.

Somehow, North American executives have acquired the bizarre notion that leadership means isolation and that senior managers represent corporate royalty. Wise corporate leaders, however, understand the importance their own actions and behavior have on the rest of the organization. "By our actions, ye shall know us" and "Do as I say and as I do" seem to be the philosophies guiding smart managers today. As one senior business unit executive from Northern Telecom stated:

> Everyone is watching me for some indication—some signal—as to what I consider important and not important. Sure, I can write memos and give speeches. But it's how I spend my time and what I get upset and happy about that really tell the story to my people. I understand and recognize that I have to manage my own behavior just like I manage the business. And let me tell you, it pays off.

In this way, the senior executives of innovative organizations act as role models and lead by example. Their tight personal control—though informal in nature—guarantees the attention and focus of organizational members while also teaching managers how they are expected to behave.

In organizations in which looser executive personal control is found, the most important organizational rules and values associated with innovation have been incorporated into the subordinates' psyche and skill set. In so doing, they are mirroring the desired behaviors for their bosses—and invoking the bosses' values.

The Fiction of Loose Control and the Illusion of Freedom

Despite the arguments and evidence presented here on the importance and use of formal controls as a means of enhancing innovation, much importance continues to be given to the notion of the classless corporation in which employees apparently have freedom to act. How can this be? We have seen that successful innovative corporations flourish under conditions that have:

- formal procedures for generating new ideas and solving problems;
- a formal process for guiding new products through to launch;
- detailed, specific performance objectives;
- detailed and specific strategic plans;
- rigorous training programs;
- tight reward systems that link performance objectives to employee evaluations;
- detailed and specific terms of reference, authority, and responsibility for new product teams and their leaders/champions; and
- detailed and specific management information systems.

Let us not forget all of the tight informal controls. Where, then, is there room for freedom and autonomy in organizations such as these? It appears that this is where "the illusion of freedom" is created.

Freedom can occur under two conditions. One is a positive notion in which one is free to do anything except that which is specifically and explicitly forbidden or proscribed. This is the conventional Western view of freedom. However, there is another, more negatively focused definition that states that one is free to do only that which is specifically and explicitly allowed—and that all else is forbidden. Successful innovative firms appear to have embraced this latter definition of freedom. Employees are free to do anything that does not conflict with the detailed and specific performance objectives that have been handed to them. Moreover, the organization has been set up specifically to ensure their achievement (with rewards, information systems, training/indoctrination, and role models).

What is most surprising, however, is that successful innovative corporations have been able to pass off this negative version of freedom as a positive one. This has been accomplished largely by sacrificing the peripheral formalities of the organization. For example, at one of the world's lowest-cost steel makers, the illusion of freedom has been successfully created through such token concessions as free coffee, casual executive dress, no time clocks, allowing employees to set their own lunch hours and breaks, open parking, and graciously allowing all employees to walk through the executive offices. In return for this, employees are "expected to get the job done." They are encouraged to do this through bonuses based on individual performance and company profits—and with rigorous company training and indoctrination. Similarly, Bausch & Lomb claims that it simply turns its various country managers loose. However, it does this only after the CEO has laid out the vision and country managers have agreed to very tough and detailed performance objectives.

These comments are offered not to criticize the approach taken by firms in their quest for innovation. They seem to have found a winning formula. But there is much confusion among managers about freedom, decentralization, and empowerment. The view taken here—and the one for which the evidence also seems to speak—is that there is no substitute for strong central leadership and control when it comes to creating and maintaining the innovative, learning, adaptive organization.

The position taken in this article is that the conventional wisdom on the management of innovation is all wrong; that it is a mistake for senior executives who, acting almost as automatons, are compelled to "loosen up" and to "de-bureaucratize" their organizations in a knee-jerk fashion when innovation aspirations are not being achieved. The reason for their errant behavior, however, appears to occur because of two key misunderstandings concerning the management of innovation and what firms need to do to become successful innovators.

Bureaucracy is not bad. An important concept in creating innovation in large-scale organizations is that of organizational transformation—especially the transformation from one bureaucracy to another. Bureaucracy is the system of rules, policies, and procedures for carrying out and controlling the organization's work. No organization of any significant size could run without it. Failures in innovation occur not because bureaucracy is bad *per se:* failures happen because the wrong bureaucracy is in place. When this happens, bureaucracy can become a constraint and impede the innovation process.

Why would companies deliberately and consciously use the wrong bureaucracy? I believe it happens because they are ambivalent or uncertain in their commitment to innovation. Senior managers don't know what they want and so they try to do everything. They want their firms to be innovative, but they also want to have high quality, or high service, or low prices—and many other things as well. When this occurs, it is easy for bureaucracy to be blamed because it is mismatched with the organization's innovation needs. Here the notion of bureaucracy becomes tainted and much maligned.

Companies that win the innovation war, on the other hand, treat their commitment to innovation as inviolate. They organize and create their bureaucracies to deliver the goods. This means they transform their existing bureaucracies—which were designed to maximize after-tax cash flows—into new engines of creativity. In this way, innovation itself becomes appreciated more as a core strategy and value than merely a tactic.

There is an implicit assumption, as well, that profits, cash flow, and market share will take care of themselves if the firm remains at the forefront of creativity and innovation in its industry. Some may scoff at this assumption. The growing evidence in support of its validity is becoming impressive.

Informal control is never loose. The view that large-scale innovative organizations are characterized by decentralized decision making and individual freedom is a myth. My own research has shown that highly innovative firms exercise high degrees of control over their innovations. This control is necessary for many reasons: senior managers' ongoing need to determine whether business units and subordinate organizational members are acting as required and in accordance with the strategy; senior managers' need for personal control; the need for timely intervention; the high competitive stakes of the marketplace; and the legal and fiduciary requirements placed on senior management. To ignore these needs is to deny reality. Those who suggest loosening control (in spite of these legitimate managerial needs) are misinformed. Perhaps the argument has to do more with the type of controls than with the amount.

There are only two ways to exercise control: formal and informal. Formal controls constitute all of the bureaucratic rules, policies, and procedures discussed above (new product screening processes, creative problem solving processes, management information systems, reward systems). Informal controls, on the other hand, are represented by unwritten rules and methods, the organization's value system, the personal actions of senior managers (as role models), and the subordinate's propensity for self-control.

Formal controls are highly visible. They are also usually very expensive to set up and maintain and even more expensive to change. A bigger problem, however, is that many subordinates (especially those in turbulent, fast-paced environments) often find the presence of formal controls personally offensive. Such controls show an inherent lack of trust from senior managers, which can potentially dampen the firm's responsiveness. When the wrong formal controls are used, they tend to act as a lightning rod for those seeking to eliminate controls altogether. Correcting any misalignment between formal controls and innovation will do much to quell many of the grievances. Nevertheless, the complaints against formal bureaucratic controls will not be eliminated.

> *"Failures in innovation occur not because bureaucracy is bad per se: failures happen because the wrong bureaucracy is in place."*

Informal controls, on the other hand, tend to be softer in appearance and less impersonal—but they are seldom loose! They rely heavily on personal contact between superiors and subordinates. As a result, they tend to be more resource-intensive in terms of managers' time while still appearing to be more user-friendly.

Among informal controls, however, critics of formal controls appear to worship the state of "self-control." Ironically, this appears to be the loosest form of control; in reality, it is the tightest. It appears loose because subordinates are left alone to control themselves. However, senior managers are willing to leave subordinates alone only when there is trust. For trust to occur, senior managers must believe that subordinates' behaviors will be controlled—as well as when a set of formal systems and procedures was the principal method of control. Developing trust (and the accompanying harmonization of employee-organization values) takes a long time.

What is required is a combination approach. Innovation needs order and structure. Though

formal bureaucratic controls are both necessary and important for innovation to occur in large organizations, they tend to be expensive to administer and sometimes offensive. Consequently, wise managers will actively look for ways to relax and reduce (but not eliminate) their firm's formal bureaucratic controls. They will also actively seek to counterbalance and supplement any reduction in formal controls with generous doses of informal ones.

If a company can influence its employees' values to further reduce the need for other forms of informal control, then this objective should be pursued. "Order without rigidity" represents the ultimate objective. It can be achieved when formal and informal controls are in their proper balance. ❐

Notes

1. Bureaucracy is defined as the structuring of intended employee behavior by the formal specification of (1) specialized rules, (2) the procedures they are to follow in carrying out those rules, and (3) the documentation of what they have to do. See also Mintzberg (1979) for a detailed discussion on the definition.

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