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STRATEGY ORIGINATES WITHIN THE ORGANIZATION

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Imagine that you have been given the task of improving the environmental performance of a major petrochemical corporation. Where would you start? Does the core of your strategy lie in technological development? Would you order that all tankers be double hulled? Would you install equipment at drilling operations to recover usable oil from drilling mud and processing wastewater? Or would you begin by analyzing how environmental concerns fit within the reward systems, structural responsibilities, and organizational culture of the corporation? These are important questions that highlight an important fact-although environmental concerns have reached the level of a strategic concern for corporations, opportunities for environmental strategy will not materialize unless organizations are structured to identify them. Environmental strategy is not primarily a technological or an economic issue; more important, it is embedded within the behavioral and cultural aspects of the firm.[1] Although technological and economic activity may be the direct cause of environmentally destructive behavior and may enable or drive environmental change, it is the culture of the organization that guides the development of that activity.[2] And just as an organization's existing competitive strategies are the product of history and culture, so too will be the environmental strategy.

Seeing the importance of this connection, the Environmental Protection Agency (EPA) mandated organizational changes as part of an enforcement action against the United Technologies Corporation (UTC) in 1993. The EPA fined UTC a record $5,301,910 for violations of federal and state laws regarding hazardous waste and water pollution control. As part of the settlement, UTC was required to (1) implement an extensive multimedia environmental audit of all

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twenty-six of its New England facilities and (2) hire a management consultant to make management improvement recommendations for achieving compliance with every major environmental law at all of its facilities. An EPA press release stated, "This is one of the most extensive environmental audits ever agreed to in an enforcement action . . . by this settlement we have not only corrected past problems, but have also acted to assure future violations will be deterred."

Perhaps one of the most contentious environmental issues of our day, global climate provoking change is considered by many as likely to have a crippling effect on economic development. Yet some see an answer not in expensive new technologies but in an alteration in the way we view the problem and its solution. Amory Lovins of the Rocky Mountain Institute is one of the more controversial thinkers on this topic; his ideas serve as a provocative starting point in considering the organizational implications of environmental strategy. In his view, controls on climate change will not cost money but will actually save money. This view is based on the notion that the obstacles to clean technologies are not in technological development. Instead, he sees organizational barriers to the adoption of existing technologies or the development of engineering parameters that will minimize energy use.

Environmental Strategy and the Organization

A shift from environmental management to environmental strategy requires a concurrent and supporting shift in organizational culture, structure, reward systems, and job responsibilities. Managers must focus on developing an organizational culture that will encourage a merger of environmental and economic interests in the decision making of its employees. But what does the "green" firm look like? How does a firm efficiently integrate environmental protection into its structure and culture? In this chapter, we first consider the goal of organizational design and then examine present-day realities and obstacles to achieving this goal.

Organizational Goals

Effective organizational strategy must focus on diffusing environmental responsibilities throughout the organization. To understand the rationale behind this statement, begin with the notion [that] what twenty years ago was driven primarily by pressures separate from core business objectives is now driven by a host of constituents whose interests stroke at the core of business decision making. These external constituents redefine environmental issues in terms that reflect their own interests, terms with which the corporation may already be familiar. In each case, the firm has a preexisting model and language with which to conceptualize the issue and formulate a response. By realizing this "fit," firms can begin to see environmental issues as strategic issues, directed no longer by external societal interests but rather by internal strategic interests.

In this chapter, we make the final connection between the strategic interests of the firm and the organizational departments established to handle those interests. Environmental strategy is really a composite of core organizational functions (see figure 11.1). External constituents making environmental demands do so in their own strategic language and from their own perspective. These demands are brought to the attention of the organization through the functions to which they are traditionally connected and whose language and perspectives they share. To develop an effective strategic response, the firm must push environmental responsibilities to those functional levels, which are, in fact, best equipped to handle them. In a company that integrates environmental strategy, environmental concerns will diffuse from the periphery of specialized departments to the core of the organization's functional competencies. Through this process, the work roles and functions of the various departments will be transformed within the organization.

Given this diffusion process, those seeking a career in environmental strategy will need to

develop an applicable set of skills and crafts and an appropriate professional path (see appendix B for a list of environmental information resources). In the future, firms will look less for environmental specialists and more for environmental generalists-not for people who know only environmental affairs but for those who can articulate environmental issues in the language of the finance, accounting, and marketing constituents that are exerting pressure. The converse will also ring true. Those seeking a career in other areas of business management will find environmentalism becoming a necessary component of their job skills, becoming integral to the conceptual framework of their decision-making processes.

Some firms today are adding environmental issues to the list of performance measures at promotion and bonus time. Executives are finding that tenure in environmental affairs is an important step in their promotion path and an important component of their ability to understand the full range of issues facing the corporation. Similarly, some business schools are beginning to include environmental considerations in degree programs, either through specific course offerings or by infusion of environmental topics into standard course requirements.[3] In this way, students are often taught environmental management not simply as an adjunct to their management studies but as an integral component of accounting, finance, marketing, strategy, process design, and product development. Even the business press, including both newspapers and journals, is reporting on environmental issues with increasing regularity. Overall, the culture of environmental protection is merging with the culture of business.

Over the long term, external environmental pressures will become more diverse and more demanding, and as the issue of environmental protection gets larger, as represented by the circle in figure 11.1, so too will the functional "slices" of this circle. The proportion of environmental concerns falling to the environmental health and safety (EH&S) department will diminish. Environmentalism will continue to diffuse throughout the organization, affecting the culture of nearly every department. As this diffusion process continues, there will be less need for an exclusive corporate environmental affairs department and more reliance on an environmental structure that integrates the skills of all operating and support departments. Although an

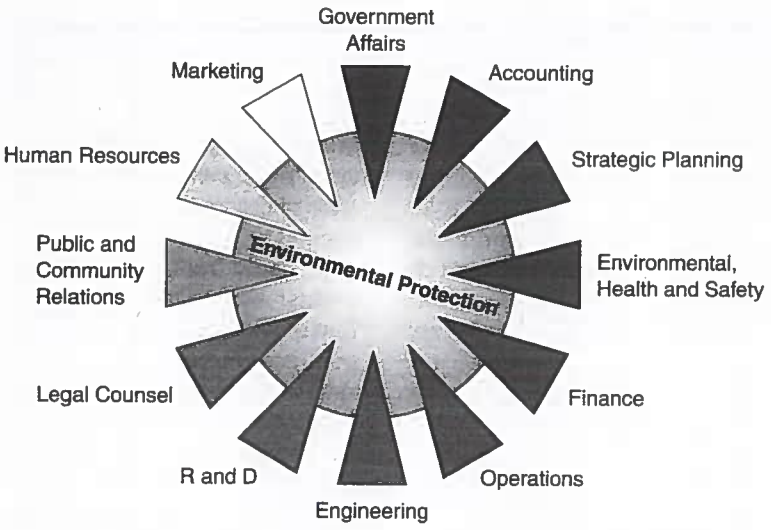

Figure 11.1 Environmental Strategy as a Composite of Internal Functional Responsibilities

environmental department's role will not disappear, it will function more as an agent of internal change—that is, it will (1) interpret changes in environmental regulations and external demands, (2) set internal direction and responses, (3) facilitate change and integration, (4) measure performance, and (5) communicate internally and externally. With this functional change, the centrality of its function to corporate practice will continue to diminish. The more important environmental work will fall to the broadly diffused management staff in pursuit of internally defined environmental goals.

This progression follows the historical trajectory of environmental management. The evolution from end-of-the-pipe treatment in the 1970s to waste minimization in the 1980s to pollution prevention in the early 1990s and product stewardship in the late 1990s involved a progressive shift in the departmental knowledge base away from environmental management and toward engineering management and product design. It is an inevitable result of the EH&S department's origin, purpose, and function. It is, in effect, a natural evolution in management from the disconnected environmental ignorance of the 1960s to the integrated environmental awareness of the new century. In effect, environmental managers are destined eventually to work themselves out of a job.

Taken to its extreme outcome, environmentalism should ultimately disappear into the cultural foundations of the corporation, just as the drive for profit and quality has. It will be implicit in the organizational structure and individual roles of each of the firm's members and departments. No profitable company must overtly remind its employees that the corporate objective is to make a profit. Similarly, a company that has achieved a reputation for first-class quality need not overtly advise its employees to perform their duties with quality in mind. These concerns become ingrained in the everyday practices of the firm so as to disappear from conscious awareness and become part of the unconscious.

Likewise, in developing the most efficient and effective response to environmental demands, the corporate manager is challenged to translate environmental considerations into concerns that resonate with the central objectives of the firm. Environmental concerns must be presented as strategic issues and pushed up to the executive level, down to the operating line, and across functional lines. However, for both cultural and institutional reasons, this change in mind-set will prove a difficult challenge. Firms will have to break down the structures and beliefs that have been built up over the past three decades and then establish new norms and values to replace them. That brings us to consider the present realities of environmental management within many firms.

Organizational Realities

The problems that led to the mandated organizational changes at the United Technologies Corporation are similar to problems found in many corporations. Because of structural and cultural barriers, companies have not been able to integrate their environmental and economic decision-making processes, perpetuating the notion that environmental issues are something outside the realm of basic business concerns. For example, after the establishment of environmental regulations in 1970, most corporations adopted a government-centered approach to handling environmental issues through a division of responsibilities within the organization. Separate environmental affairs departments were developed and often kept organizationally isolated from core departments. Their objectives were to ensure that the corporations remained in compliance with the law so that the operating core could remain focused on maximizing profits, buffered from external interference.[4] Environmental considerations of toxicity, pollution, and resource-use reduction were not considered relevant to the primary objectives of the corporation. Solutions to environmental problems that could be mutually beneficial to both the environment and the bottom line were thus excluded because of structural arrangements.

Such structural limitations create communication breakdowns throughout the organization. A

1995 survey by Arthur D. Little, Inc. identified lack of integration among departments as a major roadblock to the effective management of corporate environmental issues.[5] Departments within an organization often do not or cannot communicate their interests or opportunities to one another. For example, the federal government buys its buildings with one budget and operates them with another. Any up-front cost increases may be overlooked despite their potential to minimize operating expenses and yield short payback horizons.[6] In a similar way, most corporations pay for energy costs out of overhead expenses. Thus, even though small, incremental reductions can yield large, company-wide paybacks, most firms overlook them as individual departments remain unaware of their economic effects and focus instead on investments that increase output or market share.[7]

When asked to list the primary obstacles to industrial expenditures on environmental programs, many corporate managers ranked the accounting department at the top of the list.[8] Environmental protection costs are generally listed as a liability and not an asset on balance sheets, even if expenditures result in decreased compliance and disposal costs, savings in other areas such as improved public relations, or liability and regulatory reduction. Department managers are often shielded from incentives to seek more efficient solutions to environmental problems because environmental costs are billed not to the department but to corporate overhead.

A collaborative case study carried out by the Dow Chemical Company and the Natural Resources Defense Council revealed organizational breakdown as the primary inhibitor of the adoption of pollution prevention initiatives at one Dow facility, despite the projection that the company might save more than $1 million per year by eliminating 500,000 pounds of waste. Since the program was not required for the purposes of environmental compliance, it was not of central interest to production engineers, whose main priorities were capacity building, and did not appeal to business line personnel with profit-and-loss authority. Therefore, the project was not implemented. These personnel were more interested in maximizing profit for their business through yield improvements is than through waste minimization.[9]

Beyond structural limitations to the free flow of information, the language, rhetoric, objectives, and external constituencies of the various departments also limit the identification of strategically important environmental actions.[10] For example, environmental management staff members often take for granted that the value of their strategic environmental programs is apparent. Therefore, in communicating that value, they fail to adopt the business metrics and lexicon employed in other parts of the organization. Return on investment (ROI) and earnings per share (EPS) remain the most common business validation metrics, yet most environmental managers do not provide such economic cost-benefit analyses of environmental initiatives when attempting to gain budgetary approval. Making the boundaries even more impermeable, environmental managers often use non-business-related phrases and acronyms such as pounds of toxics, biological oxygen demand (BOD), notice of deficiency (NOD), environmental impacta statement (EIS), and life-cycle assessment (LCA), which may be familiar to their external constituencies but serve to distance other business managers from environmental matters.[11]

Organizational Change Management

How does the corporate manager overcome these organizational realities and restructure the motivations and cultural objectives of the entire organization? In developing a strategy for change management, two overarching guidelines must be kept in mind. First, according to leadership professor John Kotter, in the more successful cases, "the change process goes through a series of phases that, in total, usually require a considerable length of time. Omitting steps creates only the illusion of speed and never produces a satisfying result. And second, a critical mistake in any of the phases can have a devastating impact, slowing momentum and negating hard-won gains."[12] A road map of

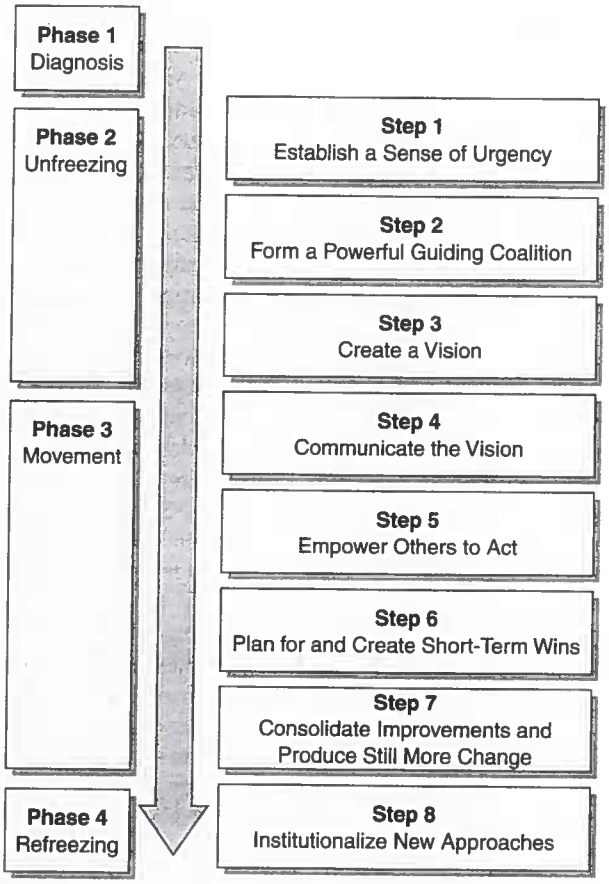

Figure 11.2 A Road Map for Organizational Change

SOURCE: Hoffman, A. "The Importance of Organizational Change Management for Environmental Decision Making," in *Better Environmental Decisions Strategies for Governments, Businesses, and Communities,* eds. K. Sexton, A. Marcus, K. Easter, and T. Burkhardt (Washington, DC: Island Press, 1998).

these phases, depicted in figure 11.2, can be segmented into a four-phase general process[13] subdivided into a series of eight critical steps.[14]

Phase One: Diagnosis

The first phase of any change process is that of diagnosis: realizing that change is necessary and then deciding what strategic actions to take in response to critical external signals. To remain connected to these external signals, many firms participate in boundary spanning activities with organizations that are sensitive to changes in the environment. These activities can involve the following types of interaction:

1. *Business-business relationships.* Examples can be seen in the Public Environmental Reporting Initiative (PERT), the Chemical Manufacturers Association's Responsible Care program, the American Petroleum Institute's Strategies for Today's Environmental Partnership (STEP) program, the International Chamber of Commerce's Business Charter for Sustainable

Development, and the World Environment Center (WEC).

2. *Business government relationships.* Examples include the Common Sense Initiative, the 33/50 Program, the Amoco Corporation's Yorktown project, and Project XL (Environmental Excellence and Leadership).

3. *Business-environmental NGO relationships.* Examples include the Keystone Center, the Global Tomorrow Coalition, the Global Environmental Management Initiative (GEMI), the Coalition for Environmentally Responsible Economies (CERES), and individual alliances between corporations and environmentalists, such as the alliance between the McDonald's Corporation and the Environmental Defense Fund and the Save the Tiger initiative between the Eamon Corporation and the World Wildlife Fund.

Through such collaborations, corporate managers can remain connected to vital sources of information, including both external signals for change and available options for organizational change management.

In selecting a solution that *is* tailored to the distinct needs of the individual organization, a careful analysis of the organization's purpose, structure, internal relationships, reward structures, and leadership systems must be undertaken. In short, any diagnosis of the firm's culture must consider its specific needs and proficiencies. Any attempt simply to overlay an externally devised formulaic program will merely create the illusion of change without providing any lasting substance. Thus, the diagnostic phase is a stage of careful reflection in which questions specific to the distinct demands, needs, and capabilities of the organization are considered. Boundary spanning will help trigger this diagnosis, but the challenge for the manager comes in interpreting these external signals and tailoring a strategic response.

It is not necessarily the heroic chief executive officer who will facilitate the process of diagnosis and change but rather what John Katzenbach and his colleagues call "real change leaders."[15] In turning the evolving demands for environmental performance into a strategic advantage, it is the managers located at key organizational pressure points who will manage the process of making the organization more effective and efficient in handling environmental affairs. These managers are "the linchpins connecting three critical forces for organizational change and performance: top leadership aspirations (what are we trying to become?); workforce energy and productivity (how will we climb the mountain?); and the marketplace reality (what do our target customers truly seek, and what can and will our potential competitors really do?)."[16]

Phase Two: Unfreezing

Once the formulation of a strategy is developed, the second phase, unfreezing, prepares the organization for change. Organizational change is likely to encounter resistance (examples of which will be discussed later), and the unfreezing phase is designed to decrease this resistance and gain buy-in from the organization regarding the necessity of change. The unfreezing stage comprises three fundamental steps: establishing a sense of urgency, forming a powerful guiding coalition, and creating a vision.

Establish a Sense of Urgency

No process of change will succeed if the members of the organization do not clearly understand why the change is being made and what importance it holds for the organization. One obvious way in which an organization can be motivated into action is through a crisis or an organizational jolt. Clearly; a disaster on the scale of the 1984 toxic gas release in Bhopal, India, by the Union Carbide Corporation or the 1976 dioxin release near Seveso, Italy, by a chemical company owned by the Roche Group (formerly Hoffman-La Roche) will garner support for change, but a manager typically will not be confronted with (or desire) such an empowering event.

Successful managers will initiate change by taking a hard look at their company's competitive situation, market position, technological trends,

and financial performance. This may involve developing a strong audit program, identifying the weaknesses in the present organization, assessing the frill range of environmental risks, and calculating the costs of poor environmental programs that do not offset these risks. Only when the environmental agenda is tied to these core business interests will a process of organizational change be accepted. For example, support for an alteration of the Amoco Corporation's environmental strategy was gained in the late 1970s when an internal report forecast $500 million in environmental expenditures over the next five to ten years. Most insiders were shocked at the scale of this estimate, and it served as a wake-up call regarding the need for change within the organization.[17] At other times, consultants can act as triggers of external change, producing a report that highlights the necessity for change. More commonly, a government enforcement action will precipitate action. In rare cases, managers may even manufacture a crisis to initiate change. In one such case, a division president commissioned a customer satisfaction survey, knowing that the results would be negative, and then embarrassed the organization into changing by making those findings public.[18] Once a significant percentage of the staff believes that business as usual is unacceptable, the process of change can begin.

Form a Powerful Guiding Coalition

Major renewal programs start with one or two central proponents. But without a sufficiently powerful core of supporters, the effort will very likely fail. One of the initial active supporters must be the head of the organization. Without such top-level support, the change process will lack legitimacy. With this in mind, chief executive officers of major corporations have made public pronouncements of their companies' commitment to the environment.

But the powerful coalition does not stop there. Although support from the chief executive will spur broad-scale organizational support, a core nucleus of champions must include participants from throughout the organization and beyond. The larger the organization, the larger the necessary coalition. For example, when the McDonald's-EDF waste reduction task force was established, the core staff included representatives of the operations, government relations, environmental affairs, and corporate communications departments as well as suppliers, and EDF itself became part of the guiding coalition for developing the task force's decisions.[19] When the Wellcraft Marine Corporation, a boat manufacturer in Sarasota, Florida, decided to switch from an acetone cleaning agent to a less volatile and toxic compound, the program committee consisted of representatives from the safety, chemical engineering, production engineering, and environmental management departments.[20]

Once the guiding coalition is developed, direct and open communication among its members is necessary in order to form a solid working base. Meeting and sharing assessments of the problems faced by the company and the opportunities they create can foster a minimum level of trust, communication, and commitment. To facilitate greater cohesion, many companies hold a series of retreats for the guiding management team to foster a solid sense of common identity and purpose among members.

Create a Vision

Even if all employees accept the need for change, it is important that they understand the goals of the initiative and their role in the process. The guiding coalition must develop a picture of the future that is relatively easy to communicate and that goes beyond the numbers and figures of a standard five-year plan. This vision generally emerges from a draft developed by one or two individuals and is fine-tuned over a period of months to fit a format that appeals to customers, stockholders, and employees. One component of this vision is a visible title for the initiative, such as the Xerox Corporation's Environmental Leadership Program or 3M's 3P (Pollution Prevention Pays) program. According to John Kotter, a rule

of thumb is that "if you can't communicate the vision to someone in five minutes or less and get a reaction that signifies both understanding and interest, you are not yet done with this phase of the transformation process."[21] However, going beyond catchy slogans, the vision must also have a set of goals, methods, plans, directives, and timetables to support an overarching mission that is clearly communicated. For example, as of 1992, 40 percent of U.S. companies had included environmental responsibility in their corporate ethics statements.[22] However, it has' been shown that written codes do not correlate with a decrease ih the number of corporate violations of the law.[23]

Phase Three: Movement

Once the foundations have been laid for effectively unfreezing the organization, the actual movement, or implementation of the change plan, should be relatively easy. In fact, according to organizational and behavior professors Gregory Northcraft and Margaret Neale, "the ease of implementation should be a good gauge of how well the unfreezing process has broken down any pockets of resistance to the change."[24] Four steps constitute the movement phase.

Communicate the Vision

The transformation process will not be possible unless the majority of employees, hundreds or even thousands of people, are willing to help, often to the point of making short-term sacrifices. To gain this level of buy-in, executives who are part of the management team must communicate the vision of the initiative by articulating it clearly and often and integrating it into all aspects of the corporation's goals and objectives. This includes speeches, newsletters, training programs, plant and office signage-every means of reminding employees of the changes that are taking place around them. A communication tool often neglected by executives is communication of the vision by example. If employees hear executives say one thing and then see them do another, cynicism will inhibit their conformance to the program's objectives. Furthermore, this vision will be received as legitimate only if it is consistently and thoroughly applied. An organization that touts recycling of office paper, for example, should also have recycling bins for glass, aluminum, and plastic, should place the bins throughout the workplace, and should service them diligently.

Empower Others to Act

Once begun, the transformation process involves all employees. Results of research conducted at Cornell University showed that the companies most successful at implementing programs to reduce toxic emissions were those that formally involved employees in the pollution prevention activities. Successful pollution prevention initiatives are not necessarily focused on technology; rather, they are focused on the organization and are best built on a platform of internal responsibility and accountability.[25] In developing this accountability; poorly designed organizational components (such as organizational structure, reward system, hierarchy of power, and accessibility of necessary information) can inhibit the full utilization of all personnel and reduce the chances of successful transformation. Organizational inhibitors create drag that will slow the momentum of the transformation process, divert resources from it, and stifle creative and cooperative action. No organization can eliminate all obstacles, but to the extent possible, obstacles must be either circumvented or eliminated as they emerge. Most likely, the great majority of them will have been identified during the vision creation stage. Once the obstacles have been cleared, the process of change can build momentum that will carry it through to successful completion.

Plan for and Create Short-Term Wins

Nothing helps build momentum more than visible success. Short-term wins show the organization

what goals it is striving to achieve and present clear examples that these goals are real. Short-term wins can encourage participating members to increase their support and may coax noncommittal employees to join the effort. Full transformational processes take time and require continued support and attention. The visible achievement of program milestones is the best way to keep people involved and show that the program is progressing as it should.

Consolidate Improvements and Produce Still More Change

The message of this stage is quite simple-do not declare victory too soon. While celebrating a series of short-term wins, managers may feel inclined to relax their effort and rest assured that they have cleared a major hurdle, confident that the road to come will be easier. This attitude can kill the momentum so hard fought for in the preceding stages. Instead, clear signs of performance improvement should be taken as an opportunity to refine original goals, integrate them deeper into the organization, and strive for further change that will firmly establish itself in the organizational culture. It must be kept in mind that the mobilization costs in initiating the change process are high. If the objectives achieved are not progressive enough to anticipate environmental demands and successfully capitalize on them, the opportunity to correct these shortcomings probably will not come again.

Phase Four: Refreezing

Once the desired changes have been fully implemented, refreezing, the process of institutionalizing the new changes, can begin. Part of this process includes communicating to employees how the new changes have helped the organization improve performance. This undertaking should be every bit as prominent as the publicity efforts that kicked off the initiative. Employees must be shown in a tangible way that they have achieved the program's objectives and what that achievement means for organizational success.

Institutionalize New Approaches

The refreezing process also involves incorporating the new changes into the formal rules and informal habits of the organization. The changes must be able to be supported and continued without the involvement and oversight of the guiding management team. In short, the artifacts that embody the organization's culture must reflect the organizational change effort in their entirety to ensure that the process of cultural change is perpetuated. To develop tangible structures to ensure that this occurs, managers can turn to the processes by which employees are rewarded for their job performance, initially hired, socialized into the corporation, assigned their job tasks, and positioned within the structure of the organization.

Reward Structures

First and foremost, how are the reward structures organized within the company? If a plant manager receives pay increases and positive promotion reviews for increasing yield and output, will environmental issues be considered relevant to his or her daily responsibilities? Not likely. As one process engineer related: "At [a major pharmaceutical company] we have three primary company ethics: one, worker health and safety; two, environmental protection; and three, process profit. But when it comes time for performance reviews, we skip the first two and go straight to the third."[26] Regardless of the extent of top-level speeches and corporate environmental policies, reward structures greatly influence the way individual managers perform their job tasks. Steven Kerr, a management specialist with General Electric, described a process called "rewarding A while hoping for B," commenting that "managers who complain about lack of

motivation in their workers might do well to consider the possibility that the reward systems they have installed are paying off for behavior other than what they are seeking."[27] Beyond pay, a reward structure can include elements of job design, noncash awards, benefits, perquisites, and advancement up the career ladder.

Rewards must be aligned so that each department manager will be required to consider how best to integrate environmental and economic interests. This is a necessary step in finding the most efficient corporate responses to environmental demands. For example, only the operations department knows how best to tailor operations to balance environmental and economic goals. The same is true for research and development, accounting, and other departments within the firm. Furthermore, only when each of these departments has full responsibility for (and bears the full cost of) the consequences of its environmental practices, rather than relying on the environmental affairs department to solve them, will incentives be aligned for these departments to consider such change.

Selection

Once reward structures are established, the criteria by which new employees are selected from the field of candidates must reflect the type of people who will be receptive to the organization's new cultural and performance expectations. Finding that type of individual is a matter of fit. Do the candidate's attributes and inclinations fit with the organization's expectations and objectives? Getting the best individuals into the organization is critical to the organization's performance. Getting the wrong individuals for the company's newly forming environmental values will result in a value incongruence that can precipitate any of several negative outcomes: internal tension and poor performance, active resistance and attempts to subvert the established values, or high turnover rate.[28] Many companies have established specific human resources programs to both select and, as discussed next, socialize new employees into the organization's environmental culture. More important, many companies find that a positive reputation regarding environmentalism enhances their ability to both obtain and retain the highest-quality people.

Socialization

Once a new employee is selected, the task of socializing him or her into the new culture of the organization becomes critical. There must be a formal training and awareness program to convey to new employees the organization's goals, norms, and preferred ways of doing things. No new employee will be a perfect fit with an organization; the socialization process provides a means for molding the new employee to fit the organization. Socialization can include several techniques, such as following a prescribed socialization program, conducting initial and ongoing training courses, making role models visible (even to the point of assigning a mentor), and delineating a carefully outlined career ladder that highlights the reward structures for moving along it.

Organizational Structure

Finally, of course, the organization's structure must be configured in a way that facilitates the new reward systems and organizational objectives. This structure is composed of both the formal and informal systems of regulated decision flows. The formal structure establishes direct and formal authority, reporting requirements, and responsibilities. The informal structure describes the more fluid communication patterns and power relationships that exist. Even though the reward structures may promote a set of actions and initiatives that favor new environmental strategies, structural arrangements must be established that allow those strategies to be implemented. Very often, it is

the organizational structure that creates the greatest obstacles to a successful process of organizational change.

Resistance to Change

Organizational change involves the unlearning of what has been ingrained over the organization's history, and this often invites resistance. Basic assumptions about organizational procedures and the realities of the external environment can become rigidly set and be difficult to reset. At times, this rigidity can be positive, allowing an organization to react rapidly to changes in the environment that fall within the range of issues previously encountered. But it can also operate as a pattern of thought and action that limits possibilities for action. The structural inertia this creates can take many forms. This section considers five: habitual routine, resource limitations, communication breakdowns, fear of the unknown, and threats to established power bases.

First, rigid patterns of thought and action can be perpetuated by habitual routine. Often, habit stems from an individual's realization that changing what has become established will involve some form of short-term cost. Even though established routines may be inefficient or inconsistent with long-term objectives, they can be familiar, comfortable, and reliably predictable. Habitual routines can take the form of taken-for-granted engineering or managerial practices. For example, the Robbins Company, a metal finisher and plater in Attleboro, Massachusetts, began its pollution minimization strategy by reducing its use of what has become an increasingly expensive raw material, water. Since the amount of waste produced is directly correlated with the amount of water used, both raw material and waste disposal costs were dramatically reduced when the company altered its plating operation to make it a closed-loop system, reducing emissions to zero. Savings to the company have been calculated to be $71,000 per year. Yet when the company's environmental manager, Paul Clark, first attempted to reduce water usage, he was told by plant personnel that it was impossible. So he resorted to gradually closing the water feed valves late at night. Little by little, water usage was reduced without plant personnel noticing.[29]

Resource limitations can restrict an organization's ability to overcome sunk costs in plants, equipment, and personnel. They can become psychological roadblocks that bias managers against certain actions or responses to demands for change. Short-term demands may deny the manager any opportunity to consider long-term gains, which, although they may be encouraging, are only potential. Short-term costs predominate, influencing the manager to overdiscount the future. An example can be seen in some companies' attitudes toward the EPA's Green Lights Program, a voluntary program that encourages businesses to install energy-efficient lighting. These lighting upgrades help prevent unnecessary pollution through more efficient use of electricity while saving the organization money on electric bills. Yet many companies resist performing an energy audit of their facilities and developing a new lighting installation program, despite an average 28 percent internal rate of return on investments in lighting upgrades by Green Lights partners.[30] In many cases, the companies have invested heavily in their lighting plans and have irrationally committed themselves to the system as installed.

Interdepartmental communication breakdowns can perpetuate environmentally inefficient routines. Again, the EPAs Green Lights Program provides an example. In the face of possible cost benefits, established reward and incentive systems in organizations often mask the opportunities available through change. Energy costs are often paid out of overhead, whereas installation and maintenance of lighting

systems are billed to the physical plant. Because of departmental responsibilities and reward structures, often neither department will recognize or respond to the need for change. The administrative department responsible for overhead may be unaware of the technical aspects and financial opportunities of lighting upgrades. The physical plant would be required to commit time and resources to the program while receiving none of the financial and publicity rewards, which would accrue to the administration. Breakdowns such as these have created an opportunity for entrepreneurs to offer lighting retrofit services. These companies provide the audit and the installation and are paid a percentage of energy savings.[31]

Fear of the unknown can drive organizational inertia and a continued reliance on basic underlying assumptions. Both external and internal change can be upsetting for organizational constituents, particularly when the outcome or consequences of change cannot be predicted. In reality, outcomes and consequences can never be predicted. In one example, boat manufacturer Wellcraft Marine Corporation went from creating 18.5 percent of Florida's acetone emissions in 1989 to less than 1 percent in 1992 by replacing acetone with a less volatile, toxic, and flammable substitute called diacetone alcohol (DAA). By making this switch, the company has also saved $91,608 per year while operating at only 33 percent capacity. Yet the initiative's champion, Bill McDonald, found that workers resisted the switch to DAA because the new solvent required different procedures. To gain acceptance for it, he worked hard to "sell" the new solvents to the workforce.[32]

Finally, *threats to established power bases* can cause resistance to organizational change. Every organization has a power structure that can bias the perspectives of those who benefit from it. Alterations in the structure and in the roles of the organization's members may be competence enhancing for some and competence destroying for others. The environmental management department may resist the transfer of some of its responsibilities to, say, the process engineering department because the very act may minimize its own usefulness. Conversely, without a clear view of the overall costs and benefits, the process engineering department may resist the addition of these new responsibilities because it sees the profitability of its other operations diminished as pollution minimization increases. In the face of such perceived threats, the instinct for self-preservation may override concerns for environmental or economic objectives in managerial decision making. The result may be organizational confusion orbattles for survival among rival departments.

In the end, organizational culture and structure can restrict the development of new ways of thinking about the environment and its relationship to economic competitiveness. Overcoming these restrictions is the task of the manager acting as a change agent. But is the manager limited in the extent to which he or she can accomplish this task? Some argue that resistance to environmental strategy may originate from sources more deeply ingrained than cultural norms and routines, in the biases of individual employees.

Tracking Progress in Organizational Strategy

As managers attempt to integrate environmental protection into the economic goals of the corporation, how can they track their progress and measure their success against long-term objectives? Management consultant Christopher Hunt and professor of management Ellen Auster have identified five generic stages for characterizing the hierarchy of increasingly ingrained underlying environmental values.[33] As shown in table 11.1, these stages differ in terms of criteria that blend both organizational and strategic aspects of environmental strategy. In short, they

Table 11.1 Developmental Stages of Corporate Environmental Strategy

Criteria	*Stage 1: Beginner*	*Stage 2: Firefighter*	*Stage 3: Concerned Citizen*	*Stage 4: Pragmatist*	*Stage 5: Proactivist*
Degree to which program reduces environmental risk	No protection	Minimal protection	Moderate protection	Comprehensive protection	Maximum protection
Commitment of organization					
General mind-set of corporate managers	Environmental management is unnecessary	Environmental issues should be addressed only as necessary	Environmental management is a worthwhile function	Environmental management is an important business function	Environmental management is a priority item
Resource commitment	Minimal resource commitment	Budgets for problems as they occur	Consistent yet minimal budget	Generally sufficient funding	Open-ended funding
Support and involvement of top management	No involvement	Piecemeal involvement	Commitment in theory	Awareness and moderate involvement	Active involvement
Program design					
Performance objectives	None	Resolve problems as they occur	Satisfy corporate responsibility	Minimize negative environmental effects	Actively manage environmental matters
Integration with company	Not integrated	Involved with other departments on piecemeal basis	Minimal interaction with other departments	Moderate integration with other departments	Actively involved with other departments
Reporting to top management	No reporting	Exception reporting only	Generation of voluminous reports that are rarely read	Consistent and targeted reporting	Personal meetings with managers and board of directors
Reporting structures	None	Exception reporting only	Internal reporting only	Mostly internal with some external reporting	Formalized internal and external reporting mechanisms
Involvement with:					
Legal counsel	None	Moderate	Moderate	High	Daily
Public relations	None	Moderate	Moderate	High	Daily
Manufacturing/ production	None	None	None	Moderate	Daily
Product design	None	None	None	Minimal	Daily

SOURCE: C. Hunt and E. Auster, "Proactive Environmental Management: Avoiding the Toxic Trap," *Sloan Management Review,* winter 1990, 9.

represent evolving cultural foundations for the way an organization perceives and takes action on environmental issues.

At the first stage of corporate environmental strategy development, beginners deal with environmental issues either by ignoring them or by adding responsibility for them to existing positions, such as that of plant manager. There is no effort to determine what the company's environmental requirements are or what the repercussions of poor environmental management would be. Firefighters may have a few employees dedicated to environmental concerns or a small centralized staff that assists individual plants in responding to crises, but they can deal with only a few issues at a time. Environmentalism remains of low concern to top management. Concerned citizens express a commitment to good environmental management but have not implemented a fully adequate environmental program. Dedicated environmental departments may be staffed with technically adequate environmental specialists, but they lack the influence or political power to effect organizational change. Pragmatists take the time to actively manage environmental issues with sufficient expertise, funding, and authority. They evaluate potential risks and decrease risks wherever possible, but their focus is primarily on policing and prevention. Finally, proactivists employ strong, motivated, high-profile individuals who take the concept of environmental strategy to the level of upper-management decision making. Diffusion of environmental responsibilities throughout the organization is facilitated by employee training and awareness programs, and environmental concerns are given high priority among departments and seen as strategically important.

Hunt and Auster stress that specific requirements for particular companies vary depending on context: type of industry, company size, type of environmental problems encountered, complexity of the organization, and range of constituents applying pressure. Thus, a program considered proactivist in one context may be only marginally adequate in another. The program must be tailored to the particular company's needs and external demands. One final matter of context that Hunt and Auster consider to be critical is time. They close their article by pointing out that environmental strategy "is not about the short term, it's about the long haul. If neglected, it can seriously jeopardize a company's balance sheets and public image for years."[34]

Conclusion

In the end, organizational change is a critical component of effective environmental strategy. Altering accepted beliefs within the organization in order to identify the linkages between economic growth and environmental protection will present various degrees of challenge among firms. For some, environmentalism is easily-subsumed under traditionally accepted values that the company already holds to be important. For example, the Volvo Car Corporation was able to incorporate some environmental values fairly quickly because these values could be easily subsumed under the traditional corporate values of safety and corporate responsibility. Likewise, Procter & Gamble found it easy to instill some environmental values into its product development function when these values were presented as consumer demand. Such metaphorical connections make the adoption of environmental practices more palatable to those most affected and speed the process of cultural change within the organization. The challenge for every manager is to figure out how best to translate environmental issues into the concerns and language most salient for the firm and context being changed.

In the future, an increasing number of companies and industries will be challenged to create new cultural metaphors for the environmental challenges before them. For example, the oil

industry faces an evolving environment that may require a fundamental cultural evolution for its individual firms. Speaking at a conference in Houston, Texas, in February 1999, Mike Bowlin, chairman and chief executive of the Atlantic Richfield Company (ARCO), the fifth largest U.S. oil and gas company, warned that "we've embarked on the beginning of the last days of the Age of Oil."[35] He predicted that there would be a healthy market for oil in the first decades of the twenty-first century but that demand for crude oil would eventually be surpassed by that for cleaner-burning fuels and renewable energy sources. "The challenge is not merely to survive today's low prices," he said, "but to plan for a future in which hydrocarbons are just one of a wide variety of fuels that will build the global economy of the 21st century."[36] This change will require more than simply an alteration of the products that oil companies sell. It will involve a cultural shift in terms of the fundamental objectives, tasks, and role that oil companies will play in the future economy. As Seth Dunn, research associate at Worldwatch Institute, observed, "Companies in the oil industry are beginning to realize that to survive in the long run they will need to become part of the energy business, and not purely the extractive business."[37]

Some companies will resist such changes and continue to press on with established beliefs and perspectives. Others will embrace the emerging future and react quickly, altering their organizations to create the most efficient and effective environmental strategy. Rather than responding to technology and performance standards dictated by the EPA, Walter Quanstrom, EH&S vice president for the Amoco Corporation (now BP Amoco), said that he envisions an organization fully prepared to take the lead on environmental strategy: "If you give this company a mark on the wall and tell them to go for it, I have no doubt as to their capability to achieve it." A former refinery manager agreed: "When we push for more flexible options, I'm taking a lot on faith. I have to believe that we have engineers who know our processes a lot better than some 25 year old [EPA] engineer in Cincinnati or at Research Triangle Park."[38] In explaining his company's plans to sell cleaner-burning fuels in 1999, John Browne, chief executive officer of BP Amoco, again looked to the organization: "I simply got tired of being on the defensive, and so did our staff. That's hardly the way to give people the sense that they are working for a great organization. It isn't the way to convince investors and customers that the business is in tune with the market."[39]

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