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FUTURE THINKING BY MIDDLE MANAGERS: A NEGLECTED NECESSITY

B Y   M I C H A E L   S A L E S

T his is a story about what happened to a group of technical managers working in a multinational corporation, the Big Can Corporation (BCC)★, when they tried to influence the organization's strategy and structure. BCC has over 20,000 employees on several continents. The company manufactures and distributes containers of various sizes for the storage of all sorts of commodities. Sometimes these materials are stored for subsequent use; sometimes they are stored for introduction into the waste stream in some form. BCC's revenue growth and profit margins have been the envy of its competitors for many years.

BCC has dominated several sectors in the consumer waste con-

* Under the terms of the author's confidentiality agreement, the case data presented here were deliberately designed to camouflage the identity of the company under discussion. However, the Big Can story remains true both to the issues faced by the client company and to the actions of the men and women discussed in this article.

TEAM TIP

Looking into the future often seems like a luxury in the face of current priorities. Yet, unless teams take the time to explore both the trends that are shaping the context in which their organization operates as well as the shared vision to which they collectively aspire, they are destined to remain in reactive mode. Make a concrete plan for how your group is going to be proactive in creating the future you all desire.

tainment business. Its cans and pails are found in many, if not most, American households, offices, and factories: under the sink, in the garage, in the laundry room, in home offices, near the toilet, in the garden, by the water cooler, in the copy room, at the vending machines, in the cafeteria, next to production lines, and so on. BCC has built and maintained its competitive advantage in its solid waste business through a strategy that focuses on distribution channel management, marketing and advertising, manufacturing processes, and materials science. BCC is a major center of knowledge about the various substances that make up its products, such as plastics.

In the domain of their consumer products, BCC's materials science managers works closely with engineers and others, throughout the company, on integrating materials science with the manufacturing process, how product ingredients support marketing, and so on. For example, BCC's waste pails are internationally renowned for their ability to withstand "punishment." That is, the user can mistreat them in all sorts of ways, and they don't break (for example, throwing them on the ground and banging them against hard surfaces, putting all sorts of substances in them, and/or placing them in locations where they are exposed to extremes of heat and cold for extended periods of time). The physical strength of its products is one of BCC's key competitive advantages.

Recently, one group of BCC's

experienced technology managers noted some disturbing trends, including:
• The materials used in the business have become more complicated and, therefore, more expensive;
• Waste management containers are beginning to be linked with information technologies in new and disruptive ways; and
• Recycling regulations are becoming ever more stringent and they are affecting the design of BCC's products.

While coming from different scientific and engineering disciplines, these technical managers were jointly responsible for the administration of the new product development pipeline. They had become more aware of the onslaught of the future when they faced a period of accentuated conflicts and tensions during a recent product launch. Addressing a long-standing customer concern, the new product incorporated a deodorizing ingredient into the production of plastics for BCC cans. Required to mesh the work of their Intellectual Licensing, Basic Research, Prototype Scale Up, Manufacturing Design, Materials Procurement, and New Product Development Program Management units in a very tight frame, the managers of these Consumer Product Technology groups (about 100 people) found that:
• They disagreed over who was supposed to do what when (role confusion), and
• They would soon need to display excellence in various scientific, manufacturing, and managerial competencies

that they hadn't even considered *(staffing issues)*.

Although test market data indicate that the new product will be successful, this complicated innovation left feelings bruised among many members of this technical community and their managers.

Rather than accept this uncomfortable situation as a permanent reality, on their own accord, the managers of these units took the initiative to start meeting to discuss and plan for the future. They did not want a repetition of this experience. The importance of this self-directed act will be more fully discussed subsequently. At present, let us simply assert that it is unique for a group of middle managers in different technical organizations to take steps to analyze and manage a problematic situation confronting their units with neither their superiors nor their subordinates demanding that they do so.

With one member of the group, in particular, championing the effort, managers representing the Intellectual Licensing, Basic Research, Prototype Scale Up, Manufacturing Design, Materials Procurement, and Program Management units met periodically over the course of several months to address role responsibilities and technology planning. They found that conversations regarding the management of their independent processes led to a significant reduction in tension between both the managers and members of their teams. Furthermore, these discussions fostered experiments, such as the sharing of information and certain key personnel between units for the purpose of ironing out bumps that had traditionally plagued the sharing of information and materiel between functions.

The managers began to reflect seriously on the impact of prospective innovations on technology strategy and the implications of possible new directions for the staffing and structuring of their units. Specifically, they began to construct "capability matrices" projecting out 25 years. They came to feel that their own thinking about their future was being constrained by their living and working within particular frames of reference. That is, their technical disciplines, their existence within Big Can, their age, their ethnicity, the ethnocentrism of their multinationals, etc. biased them in ways that they knew they did not know how to assess. One might say that they knew that they did not know how their existing mindsets limited them. They sought assistance from a consultant to open their eyes to new possibilities and to help them articulate a long-term technology vision.

> They came to feel that their own thinking about their future was being constrained by their living and working within particular frames of reference.

The Futures Workshop

With an ostensibly enthusiastic blessing from the vice presidents for the various functions represented by these managers, the technical managers approved the design of a two-day planning workshop. The objective of the workshop was to generate a broad range of ideas about the forces that might be shaping the consumer product businesses in the future and to assess the possible organizational and structural impacts of these forces on the consumer products technical community.

The workshop moved through the following steps:

• A Metaphor Exercise in which groups of participants created a visual metaphor for the future of BCC's business. The graphic indicated the key forces on the minds of its creators as well as three key opportunities embedded in the situation and three threats or concerns. For example, one graphic showed a picture of a box that represented the traditional relationship between BCC's Materials Basic Sciences and its Engineering organizations, with an "outside the box" concept represented by bomb bursts coming from other scientific institutions, such as universities. The notion of a paperless society was introduced into the drawing as a threat. This concern was counter-balanced with the possibility that waste containers would have a built-in bar scanner that would assess the monetary value of used electronic equipment and other household equipment via a wireless Web connection.

• The managers then built a 25-year timeline that surveyed their opinions and hunches about prospective development in six different domains ("STEEPA" categories):
  • Societal changes
  • Technological advances
  • Economic developments
  • Environmental considerations and regulations
  • Political issues
  • Aesthetic norms

Although this was not a rigorous investigation, every member of this intellectually curious group introduced a broad range of provocative ideas into this rich and vigorous multi-hour discussion. Here are a few of them:

• The prospect that pick-up charges for waste haulers will rise precipitously, putting garbage services out of reach for many current customers.

• The emergence of highly sophisticated recycling services that work best with increasingly complicated waste management equipment configurations, including containers that act on their contents in some way, e.g., weighing and prepackaging metal products.

• The introduction of containers that store hazardous wastes, such as certain types of batteries and lubricants, and track their value in the recycling market through wireless internet connections that can be read out through an electronic display on the storage device.

• An explosive growth of international opportunities linked to recycling.

Using an abbreviated version of a scenario construction technique, the team ranked the trends in each of the STEEPA categories and then chose two that represented the highest impact/highest uncertainty ("cost of capital" and "interaction with informa-

tion technologies"). They then mapped out four story lines, reflecting ways in which these trends could interact. Next, they chose their "preferred organizational narrative," i.e., the scenario they most wanted to see happen in the future and, therefore, the one that they wanted to design their organization toward.

This discussion of the kind of world they would like to live in set up a multi-hour conversation about BCC's structure: What was the most robust technical organization these managers could envision? That is, what structure might achieve the state of innovation and productivity desired by the managers, but would also be flexible enough to respond to whatever vicissitudes BCC would face?

Each member of the team laid out his or her response to these questions, and they discovered quite a bit of commonality. One member synthesized all the ideas into an elegant graphic. This was a far-reaching proposal that would change a variety of BCC's long-standing organizational structures for the management of technology, but offered much to hope for in terms of new efficiencies and inter-unit collaboration.

At this point, the managers became quite excited. They realized they had developed a proposal that would change each of their units, but would also, in their opinion, secure the future of BCC's consumer product lines to which they were very committed. Further, they felt that they were in an ideal position to promote these changes, since they knew the most about the actual workings of their particular technology groups. The scene had some similarities to one where the captains who will be most affected by a phase of a military campaign generate their own action plans rather than having them dictated to them by generals viewing the scene from some distant, and uninformed, locale.

Managers Get a Headache

The meeting ended with the managers doing some initial planning about meeting with the vice presidents to whom they reported and dis-

cussing how to inform members of their group who had been unable to attend the meeting. Also, because of pre-scheduled commitments, two of the members of the group—including the champion of the entire process—had to leave the workshop early, even though they very much wanted to stay. Furthermore, the group itself was undergoing personnel changes. One of its members, the director for Basic Research, was leaving the company after 20 years of service and another going on to a position in Europe.

> **Almost from the moment the meeting ended, the managers' hopes began to dissipate.**

The Director of Basic Research was being succeeded by a younger scientist who expressed concern during the workshop with the idea that he was going to have to advocate these changes to his superior. This was his first time meeting with the group as a whole, and he was unsure of the agenda coming in. Members of the group assured him that they would assist him in making the group's case to his president, and he seemed comfortable with the product of the group's work.

Things did not go as planned. In fact, almost from the moment the meeting ended, the managers' hopes began to dissipate.

First, the timetable for their meeting with the vice presidents changed dramatically. As soon as their superiors heard that the managers had had a useful planning session, the vice presidents moved up the initial timetable for discussing the results. This conversation occurred more than two weeks earlier than anticipated. The managers had intended to spend a full day thinking through an approach to the important conversation because they realized that their ideas were highly innovative and, therefore, politically charged. They were all supporting significant change in their own work situation. They

were all willing to give up something in their units in order to achieve a higher degree of integration of BCC's technology strategy. They knew that they were going to have to convey the importance of their strategy to their superiors. The eradication of their opportunity to prepare for the meeting made this impossible. However, no one thought that the group could say "no" to the vice presidents' request for an early briefing.

Second, both anticipated and unanticipated personnel changes took effect. The seasoned manager of Basic Research retired, and the Program Manager representative attached to the Consumer Container Business took a new job as planned. Surprisingly, the member of the group who had captured the will of the team in a particular graphic was asked to stop participating in its deliberations because he was seeking a promotion that other members of the group would influence. The replacement for the manager of Basic Research was afraid to tell his vice president about the changes the team was advocating. And a new representative of Program Management struggled to become fully acclimated to the group, both because he had little background in the Consumer Products Business and he had no real connection to the other members of the group.

The meeting with the vice presidents was disastrous. The managers assumed the vice presidents would recall the background of the situation. Instead, they seemed to have forgotten a great deal about what was at issue in the managers' meeting. Thus, the presentation was experienced as abstract and erratic. Even though the managers felt they had gotten a clear sign-off from their superiors regarding the purpose of the workshop, one vice president criticized them for "having gone beyond your charge":

You were supposed to be looking at staffing issues for the immediate future and the next year. What is all this stuff about 10 and 20 years from now?

Another was nearly livid in his complaint:

You've pushed yourselves into decision-

making domains that you have nothing to do with! [He went on, essentially, to assert that the managers were trying to do his job.]

After the meeting, the managers beat a hasty retreat. They reworked their material to focus on the near term. The new member from Program Management took the lead in managing the "political interface" between the managers and their superiors by asserting that the group had misunderstood and mismanaged the political nature of their relationship with their superiors and that he should be the person to repair the situation; the other members of the group accepted this definition of the situation. The new manager of Basic Research distanced himself from the group. The "synthesizer" who had crafted the graphic that was so helpful to the group stopped attending meetings and spoke with excitement about other activities. The champion of the Futures Thinking project was humiliated by the entire experience. Feeling unsupported, he began looking for options outside BCC.

Summary: This team, which made such headway in understanding the future, decided to put the project on hold.

A Specific Example of a Generic Organizational Disease

Particularism provides one lens on this story. That is, one could conclude that these particular individuals made mistakes. One can almost hear the chorus of critiques:
• "They should have waited for the personnel changes to take effect before holding the workshop."
• "They should have said 'no' to the demand for an earlier meeting with their VPs."
• "They should have gotten clearer up-front approval for the Workshop."
• "They weren't going to get anywhere without a greater commitment from the Basic Research guy, so why did they push ahead?"

On the other hand, this story can also be seen as an illustration of an all-too commonplace system dynamic called "The Failure of Middle Integration." The human systems theorist, Barry Oshry, offers us this perspective. Oshry's theory is based on hundreds of simulations of organizational life focused on the way in which the systemic dynamics created by social structure affect the power and efficacy of individuals and groups. Approximately 40,000 people have participated in these programs, and they overwhelmingly report a high level of coincidence between the generalizations of Oshry's theory and their own experience in specific organizations. Interventionists, such as organization development practitioners and line managers who use these concepts to manage change efforts, also support the validity and utility of Oshry's ideas.

Oshry contends that the systemic forces exert predictable impacts on groups at various levels of an organizational hierarchy. Unseen, these forces will almost certainly limit the effectiveness of any group and, therefore, the level of satisfaction people have in being part of it.

Using the terms "Tops," "Bottoms," "Middles," and "Customers" to represent people who either spend most of their working lives in the strata of organizational life suggested by these terms or can be described as having that position on a particular project, Oshry—oversimplifying his argument—holds that:
• At the *Top* of a system (or any subsystem within it), specialization will emerge as a strategy for managing information overload (e.g., Vice Presidents for Research, Operations, Information, etc.). The consequence of over-specialization is, ultimately, competition over the strategic direction of an organization (or a subsystem) and rivalry over which particular function should have the highest organizational status and receive the lion's share of the available resources. He refers to these Top dynamics as "turf" issues.
• At the *Bottom* of a system, solidarity and de-differentiation become preferred strategies for dealing with the inherent vulnerability of being in a system where others make decisions that affect Bottoms without the participation of the Bottoms themselves (e.g., plant closures and changes in procurement policy). Bottoms organically unite in the face of these conditions, and they frequently resent individual members of their group who attempt to differentiate themselves from others.
• In the *Middle* of the system—our primary interest here—individual managers are pulled away from each other, physically, mentally, and emotionally. Oshry contends that this "alienation in the middle" results from both living and working within silos (functional, geographic, business line, etc.) and having to deal with issues that Tops and Bottoms in a particular silo have with each other. In other words, members of Middle groups disperse because they are kept at a distance from each other through the dynamics of the system. The more complex, the more bureaucratic, and/or the more hierarchical the system (as with BCC), the greater the level of dispersion in the middle management ranks. Dispersed Middles have difficulty integrating. They are "disintegrated."

There are multiple negative consequences for Middle disintegration:
• Tops in a system have more issues and problems coming at them from all sides because Middles haven't been able to pay attention to them.
• Bottoms are made more vulnerable because a seemingly functioning Middle team is not mediating arbitrary changes in their work and their level of security.
• Customers and suppliers get mixed signals because organizational functions aren't working well together.
• Interpersonal distance between Middles separated by organizational boundaries tends to increase when managers and supervisors have both little contact with each other and regular experiences of being disappointed by one another.
• Middles—as illustrated in the BCC case—always have "something better to do" than interact with each other. They can't find time to meet. They are continually pulled away

from these meetings when they do occur by "important phone calls that will just take a second" or other interruptions. Since something else other than being with each other is typically more important to individual Middles, it is easy to see why Middles may not feel very close to each other as a group.

• They are regularly being promoted, demoted, fired, or transferred without much regard to the impact of these changes on Middle groups or without much Middle input into the processes by which these decisions are made. These personnel shifts provide Middles with frequent reminders of their low power status in organizations, with all of the attendant results of such self-perceptions.

Not surprisingly, given these outcomes, Middles are frequently seen as weak, incompetent, unreliable, indecisive, and/or prickly by both their superiors and their reports. Thus, they are also seen as the most expendable if and when the time comes to cut back on personnel.

Middle Integration

Oshry proposes "Middle Integration" as an antidote to these problems. Middle Integration occurs when the managers of various subsystems consciously make an effort to mitigate the effects of organic separation by meeting regularly to identify and address issues without their subordinates or their superiors being present. Middle Integration works best when it has the enthusiastic support of the superiors to whom middle managers report. Superiors demonstrate their encouragement for Middle Integration by refraining from "messing down," e.g., demanding to have specific information about the conversations occurring among Middles, which was not so of the Tops in the BCC case. It should be noted, however, that they did not act in a significantly different manner than most others in their position would have if presented with the same set of events. They were not "the bad guys." In fact, given Oshry's theory, one would predict that Tops would be (1) either unaware of the systemic and structural

conditions that make turf struggles, or aware of the conditions but unable to counteract them effectively; and (2) concerned about any integrative activity by Middles that would affect the "game of power" at their level in an unpredictable and unplanned for fashion.

For Middle Integration to occur, Tops should support the independence of Middles to meet, plan, and act without having to seek constant approval from their superiors. In turn,

> **Operational issues have been identified earlier and handled better, and relationships among middle managers and their units became more positive.**

Middles should address the legitimate need that Tops have for information about Middle Integration activities by communicating regularly with Tops and aligning their integrating activities with the agendas, needs, and perspectives of their superiors. This sort of linking process fosters the empowerment of Middles, who are constantly threatened with being isolated in their silos, while also bolstering the long-range strategic activities of Tops.

In the BCC case, for example, the Tops might have pointed to the farsightedness of this Middle group as a reason to lower the cost of long-term credit, which is becoming an important issue to the whole company as international competition heats up.

Oshry outlines eight levels of Middle Integration:

1. *No integration:* The common condition, i.e., no awareness of systemic forces that pull Middles apart and no self-generated information exchange

2. *Sharing information:* The simple transfer of data about different parts of the system

3. *Working the information:* Diagnosing what the system (or its sub-components) needs

4. *Coordinating responses to issues identified*

5. *Problem solving:* Addressing identified needs through self-initiated experiments

6. *Mutual coaching:* Helping each other with issues faced by individual members of the group

7. *Sharing best practices:* Enhancing organizational learning

8. *Power bloc:* Uniting as a Middle team to affect organizational direction and policy

Compared with the preceding level, each degree of integration requires a higher level of commitment between Middle group members to their team effort. And, each higher level may entail greater political risk and, therefore, each demands a higher and higher level of encouragement and understanding from the Tops of the organization. For example, the Tops in the BCC situation could have expressed appreciation for their Middles' work on the articulation of a technology management structure even if they, the Tops, were also considering the matter. Instead of punishing them for their initiative, the Tops could have treated the work of their subordinates as a valid option for their consideration.

Many organizations, including Microsoft, Ashland Chemical, Hewlett Packard, and Union Carbide, have been experimenting extensively with Oshry's ideas. In instances where Middle Integration has been fully implemented, the results have been quite encouraging. Senior executives have been relieved of operational responsibilities and are more able to concentrate on larger strategic questions without sacrificing organizational efficiencies. In fact, operational issues have been identified earlier and handled better, and relationships among middle managers and their units became more positive with a variety of quantitative and qualitative results.

At BCC, however, there had been little explicit support for anything like Middle Integration. These managers were working against the grain of their system. In spite of their apparent endorsements early in the process, their superiors did not welcome the inventive initiative of these Middles. Instead, they saw the Middles' behavior

as poorly organized or ill considered, at best, or, worse, as insubordinate. The middle management team thought it had a level of support for its initiative that it clearly did not have. Rather, their superiors criticized them for being late to do the job that they were supposed to do, adding to the docket of their vice presidents' responsibilities and implicitly criticizing them by stepping in to the vice presidents' "turf." As soon as they met this sort of resistance, the managers returned to their typical dis-integrated state.

Middle Integration and the Survival of the Fittest

The collapse of the planning effort by the technology managers of BCC's Consumer Products Division constituted the loss of a unique opportunity for this corporation. A group of senior managers moved from hope to disappointment. In spite of the fact that the members of this group demonstrated real talent as in investigating the future, the likelihood that any of these managers would initiate (or even participate in) such an undertaking was diminished. As a result, BCC has become considerably more vulnerable to competitors who are in a position to capitalize upon vulnerabilities to which this company chose not to attend.

Clayton Christensen points out that most "disruptive technologies" (i.e., technologies that take an industry into an entirely different direction) were initially evaluated and passed over by the firms that dominated particular industries. If, 10 years from now, BCC has lost much of its dominance of the consumer products containers business to more nimble competitors, it may well be because it didn't have the capacity to learn from this group of forward-thinking, enterprising, and integrated middle managers.

This case may also be a cautionary tale for participatory theory at a general level. Interventions that bring multiple stakeholders and all levels of an organization together for visioning and problem-solving activities rely on the belief that highly stimulating and interactive processes can transcend the

boundaries and rigidities created by organizational structure. The BCC case indicates that such interventions may be short-lived, however, if they are not supported by a commitment to organizational learning activities that makes the players conscious of the forces impinging upon the systemic "space" they occupy. Without such "system sight," highly participative, short-term interventions may, in fact, become a foundation for enduring cynicism once people are again confronted by the Real politik of organizational life. ◘

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For Further Reading

Christensen, Clayton M. *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail* (Harvard Business School Press, 1997)

Oshry, Barry. *Leading Systems: Lessons from the Power Lab* (Berrett-Koehler, 1999)

Oshry, Barry. *Seeing Systems: Unlocking the Mysteries of Organizational Life* (Berrett-Koehler, 1995)

Schwartz, Peter. *The Art of the Long View: Planning for the Future in an Uncertain World* (Doubleday, 1996)

NEXT STEPS

Once your organization has made a commitment to involving people from all levels in exploring the future, what tools or methodologies can be useful in doing so? Here are three possibilities:

• *Future Search:* Future Search is a planning methodology that brings together people from all areas of an organization—those with resources, expertise, formal authority and need—into the same conversation. This practice is called "Getting the whole system in the room." Participants generally meet for 16 hours spread across three days. People tell stories about their past, present, and desired futures. Through dialogue, they discover their common ground. Only then do they make concrete action plans. The meeting design relies on mutual learning among stakeholders as a catalyst for voluntary action and follow-up. People devise new forms of cooperation that continue for months or years. For more information, go to www.futuresearch.net.

• *Scenario Planning:* Scenario planning is a group process that explores the most important, uncertain forces affecting an organization's future. Through the exchange of knowledge, research about key trends, and development of deep understanding of the factors that influence an enterprise, participants craft a number of stories of plausible futures. These scenarios help participants to link uncertainties about the future to the decisions they need to make today. Useful resources include *The Art of the Long View: Planning for the Future in an Uncertain World* by Peter Schwartz (Currency, 1996) and *The Sixth Sense: Accelerating Organisational Learning with Scenarios* by Kees van der Heijden, Ron Bradfield, George Burt, George Cairns, George Wright (John Wiley & Sons, 2002).

• *U-Process or Theory U:* The U-Process or Theory U stems from the work of Otto Scharmer and others on how we can "learn from the future." By moving from observing current reality to reflecting in order to allow inner knowledge to emerge to acting swiftly in order to bring forth a new reality, groups are able to create truly innovative approaches to complex problems. For more information, see *Presence: An Exploration of Profound Change in People, Organizations, and Society* by Peter M. Senge, C. Otto Scharmer, Joseph Jaworski, and Betty Sue Flowers (Currency, 2005) or go to http://www.ottoscharmer.com/.

—Janice Molloy

THREE HORIZONS: SHIFTING VISION TO LEAD TO AN EMERGING FUTURE

BY SADRUDDIN BOGA

Good leadership constantly requires a careful, ongoing evaluation of a vision of the future to which one can navigate. Many leaders are guided by the mechanistic worldview that projects a future horizon from the consciousness of our past—a *forecast*. This approach of *forecasting* holds serious limitations that prevent us from predicting the distant horizons. This article outlines the three horizons for our journey into the future. To co-evolve synergistically and harmoniously with the emerging future, we need to steer at three levels of consciousness. The first two levels project the *forecast* of the first horizon and the *foresight* of the second horizon, respectively. The third level is the most challenging. It requires us to "be in the present" to enable us to *foreknow* the distant future. These trajectories to the three horizons are not separate or sequential. They are complimentary, iterative, and recursive.

• **The First Horizon:** Our *past* consciousness projects the *forecast* of the immediate future. Past becomes the stimulus for the future. It resides in the realm of mechanistic worldview and logical analysis—the *logos*—*left*-brain dominance. It is guided by problem-solving intervention.

• **The Second Horizon:** Insight or intuition, drawn from our mythic *past*—the collective unconscious—projects the *foresight* of a distant horizon. It resides in the holistic paradigm—the *right*-brain dominance and the *mythos*. It is facilitated by the interplay of polarities and paradoxes.

• **The Third Horizon:** *Foreknowledge* of the distant future can be experienced by *being in the present*—contraction of time and "self" (in humility), and expansion of "self" (in compassion). This resides in the co-evolutionary paradigm and mystical realm—the *mystikos*. It can be facilitated through an authentic dialogue.

This article will describe the philosophical and theoretical underpinnings of the three strategies for developing the three horizons. Each of the interventions proposed requires an appropriate catalytic environment for its fruition. Some of them include metaphors, art, music, humor, storytelling, and dialogue.

First Horizon

Greek philosophers of the seventh century B.C. made sense of their external world through reasoning and logical analysis—the *logos*. This tradition marks the genesis of Western scientific tradition embracing observation, rationalism, and naturalism. It seems that the influence of Greek philosophy and classical science (Newtonian physics) has given us an enduring legacy of mechanistic thinking. With our problem-solving worldview shaped by our mechanistic thinking of cause-and-effect, we fix problems in anticipation of a quick desired future. But this approach has many shortcomings:

Shackled to the Past. We reflect on the past and project it into the future to give us a short-range forecast as shown in "Forecasting the Immediate Future." Projections of the past into the future often make us repeat our past mistakes or limit us to past successes. At best, it can provide us with a limited forecast of the immediate future. For example, today's weather may give us some indication of what one may expect over the next few days, but not in the distant future.
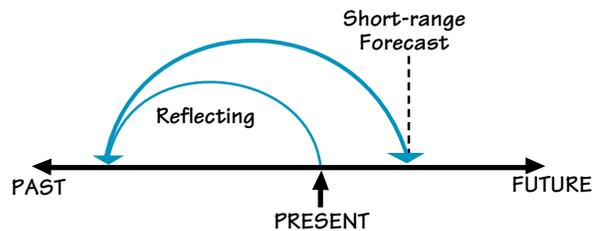
World of Chaos. Isaac Newton's laws of motion have enabled us to predict fairly accurately the location and the movement of the celestial bodies. But their application to complex situations in our turbulent

TEAM TIP

Divide a group into three teams and ask each team to develop one time horizon (first, second, or third). Then have the three teams bring their models together, with the first horizon nested in the second, and both nested in the third. Is the outcome a plausible map of an emerging future? If so, what are the implications for your organization? If not, why not?

environment such as those encountered in our social, political, and economic domains is inapt. The world of chaos carries the potential for unexpected amplification of weak signals, popularly referred to as the *butterfly effect.* For example, a single terrorist proclamation can precipitate a cascade of events that impact the entire economy.

Pitfalls in "Fixes That Fail" Archetype. In analyzing the dynamics of systems, we frequently use the "Fixes That Fail" archetype as a lens to explore the unintended consequences of our problem-solving actions. But if we do while entrenched in the mechanistic paradigm, such analysis can be accompanied by pitfalls:

• Stuck in a reactive mode, we generally rush in to fix the problem without adequately investigating the root cause.

• Our choice of unintended consequences can itself be driven by our problem-solving mindset. We proactively look for potential problems that will need to be solved, leading to a self-fulfilling prophecy.

• When we explore the unintended consequences, we rarely look for possibilities of good outcome or opportunities; nor do we distinguish between the consequences that we will need to adapt to and those we could influence.

• Every unintended consequence has its own expectancy of occurrence. Some are expected to occur in the immediate future and some later. Thus the ability to foresee the distant future becomes imperative if we want to have a broad systemic view of the whole.

• In certain cases, the so-called unintended consequences may in fact be undeclared "intended consequences," in the hope of fulfilling some political agenda.

• When we notice each detrimental consequence, we treat it as a problem and proceed to fix it, which generates its own set of unintended consequences, each of which becomes a problem. Thus we launch an endless cycle of problems, which all proliferate from one single problem.

To illustrate this proliferation, let's examine the problem of starvation in a given country. Our immediate reaction would rightly be to send food donations. But such action can be followed by myriad unintended consequences. They include collapse of local agriculture, increase in population, corruption, dependency, and so on. Each of these unintended consequences represents a problem, which, if solved in the reactive mode, would precipitate its own set of unintended consequences. Thus a single problem can generate chaos and disorder. Each unintended consequence exacerbates the problem, creating a paradox. This is illustrated in "Proliferation of Problems and Paradoxes in a Quick Fix."

• As every unintended consequence exacerbates the original problem, it represents a paradox. Since each one of the unintended consequences becomes a problem, with its potential to present a paradox when solved, a whole array of paradoxes can precipitate from a single problem. Can such an assortment of paradoxes liberate us from the bondage of the mechanistic paradigm and serve as an intuitive framework for exploring future scenarios? To sound a note of caution, awareness of the paradoxes by itself cannot stimulate the shift, unless catalyzed by an enabling environment.

• In the above analysis, we, sadly, do not see the problem as universal suffering of humankind but suffering of the "other," thereby stripping us of a sense of compassion. Our actions then tend to be driven by self-interest, under the cloak of some acceptable ideology such as charity, goodwill, freedom, democracy, and so on. Systems thinking, by its very designation, implies *thinking conditioned thoughts* and is unmindful of the complexity of the human psyche, the same way the proverbial fish is unaware of its ambient water. Otto Scharmer lucidly describes this unawareness as a blind spot in social sciences.

Second Horizon

Our ancestors constructed legendary narratives of supernatural origins— gods, goddesses, demons, and so on— to make sense of changes in their external environment. They internalized the myths by co-acting with the gods and demons in the cosmic theater. Their narratives and accompanying rituals permeated into the very core of their being—their psyche. The Greeks call it the age of *mythos*. It

PROLIFERATION OF PROBLEMS AND PARADOXES IN A QUICK FIX
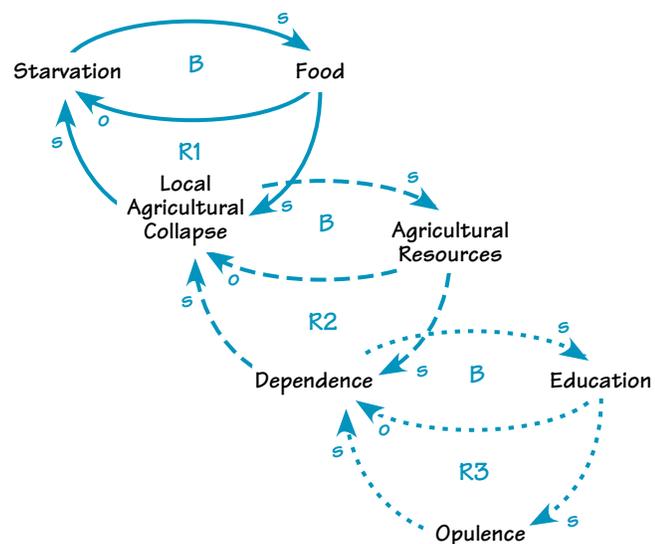
Consider a starving nation that receives food donations. In the short term, the intervention relieves the starvation. However, unintended consequences exacerbate the "problem." Conventional Metaphor: *Food relieves starvation.* Paradox: *The more we feed, the greater the starvation.*

existed in almost every ancient culture and civilization.

• Carl Jung concluded that mythology was a universal phenomenon of the *collective unconscious*—an archetypal field of the human psyche.

• Albert Einstein contended: "The intellect has little to do on the road to discovery. There comes a leap in consciousness, call it intuition or what you will, and the solution comes to you and you don't know how or why."

Can we draw *intuition* from our collective unconscious to foresee the future? We can delineate logos, mythos, and mystikos on a continuum of time and beyond, ranging from *chronos* to *kairos*. Each phase holds a specific quality and intensity of creative work. Along this continuum, there is a phase in which ones passion for creative work evokes a sense of distortion of time.

• When we want to bring about a quantum shift in our consciousness to meet a new challenge, we can spark creativity through intrinsic motivation that causes a psychological distortion of physical time.

• Mihaly Csikszentmihalyi called it the *flow*. In this state, the creator gives total attention to what is being created with exclusion of all distractions. Time flies. Every moment of the journey becomes its destination.

• The experience of a creative flash (Ah-ha) is arguably more *intuitive* than analytical (right-brain activity, according to Ned Herrmann). Therefore if we can foster a creative environment, it can stimulate the intrinsic motivation and intuition necessary for foreseeing the distant future.

The Third Horizon

There is an existential dimension of human faculty, the *mystikos*—a state, in which one can experience higher intelligence. Through such transcendent awareness, we can gain a holistic *foreknowledge*. The fifth-century Roman philosopher Boethius described such awareness as *totum simul*, meaning the perception of the *whole* in the same instant. In this state,

we experience the "now," as lucidly expressed by William Black in his famous verse:

> To see a world in a grain of sand,
> and heaven in a wild flower;
> Hold infinity in the palm of your hand,
> and eternity in an hour.

Though *mystikos* is not something we experience everyday, a collective ascent to a higher metaphor—combined with a fitting narrative and dialogue—may help to compress time sufficiently to invoke the glimpse of the *unknown-unknown*.

> **Can we draw intuition from our collective unconscious to foresee the future?**

Process for Navigating the Emerging Future

Driving a car provides a simplistic and heuristic metaphor to illustrate these three aspects of the journey:

• As we drive along a meandering road, an awareness of a linkage—between what we have passed to what is passing—can give us a *forecast* of the emerging future—the *first horizon*. It requires a regular scan through the rear-view mirror. It represents "one path, one journey."

• Sense of the *second horizon* requires intuition about the direction we want to take. It represents making a choice from several plausible scenarios. Our adaptive competence would guide our choice of a viable path.

• Finally, we enter a terrain that has no path. It is a "pathless journey" of discovery. It requires us to be in the "now," as we adapt to the terrain and influence the creation of a path to the *third horizon*.

There are a number of ways in which this process can be designed and implemented in an organization, bearing in mind the importance of creating an appropriate enabling environment described above. In one such design, we can divide a group into

three teams. Each team could be asked to develop one horizon. The three teams can then get together to carry out a conversation such that the three findings can form a set of Russian Matriôcha dolls: the first horizon nested in the second, and both nested in the third. Thus, they would end up with a plausible map of an emerging future. Such a map would require continual monitoring to ensure co-evolution with the rapidly changing environment in which it exists. ◘

Sadruddin Boga is a professor at Antioch University Seattle, where he designs, develops, and delivers courses and workshops on systems thinking, innovation and creativity, global pluralism, leadership in business, strategic planning, and Eastern Mysticism. With extensive experience in management, organizational consulting, and higher education, he has a doctoral degree in human and organizational systems from Fielding Graduate University. Sadruddin has lived in Africa, India, Europe, Canada, and the United States.

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> **YOUR THOUGHTS**
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> Please send your comments about any of the articles in *THE SYSTEMS THINKER* to editorial@pegasuscom.com. We will publish selected letters in a future issue. Your input is valuable!

BEYOND AWARENESS: TURNING THE TIDE TOWARD SUSTAINABILITY

B Y   J A N I C E   M O L L O Y

Have we reached a tipping point of awareness around global warming? Former vice president Al Gore's high-profile movie, *An Inconvenient Truth*, with its dramatic depictions of the looming environmental crisis, gained critical acclaim and record-setting crowds. Sir Richard Branson recently announced that all profits from Virgin Airways and Virgin Train—an estimated $3 billion over the next decade—will be invested in initiatives to develop new energy technologies. Even President Bush, who had previously expressed skepticism about global warming, seems to have accepted the incontrovertible fact—that human activity is causing climate change.

For most of us, insight into the problem isn't enough—we want to know what steps we can take to become part of the solution. Two new books, taking two very different approaches, offer ideas and inspiration for how individuals and organizations can begin the long journey toward bringing the planet back into balance—and connecting meaningfully with others along the way.
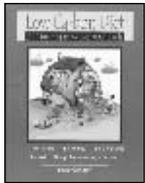
Low Carbon Diet: A 30 Day Program to Lose 5000 Pounds
by David Gershon (Empowerment Institute, 2006)

In this accessible, action-oriented workbook, Gershon walks readers through a series of checklists designed to help reduce annual household carbon dioxide consumption by at least 5,000 pounds. With easy-to-follow instructions and a focus on high-leverage activities, these tips make minimizing our environmental footprint seem easy.

The author divides the change program into three categories. *Climate-friendly lifestyle practices* require a shift in habits, such as taking shorter showers and practicing fuel-efficient driving. *Household systems* are a home's mechanical infrastructures; through periodic maintenance, such as sealing air leaks, you can make them more ecologically sound. But perhaps the greatest leverage lies in the last category—*Empowering others to lose unwanted pounds.* By inviting friends, neighbors, and coworkers to join you on "the diet," you can scale up the impact of your efforts, create a support system, and begin to lay the groundwork for making changes in the larger systems you are a part of.
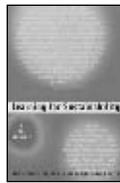
Learning for Sustainability
by Peter Senge, Joe Laur, Sara Schley, and Bryan Smith (Society for Organizational Learning, 2006)

Combining thought pieces with tools for individual and organizational change, systemwide explorations with personal stories, this slim volume illustrates how ordinary people can—and must—take extraordinary action in these troubled times. The five disciplines of organizational learning and Robert Fritz's creative tension model provide a practical and highly effective change methodology for groups ranging from massive multinational energy corporations to a small nongovernmental start-up in rural Uganda. On another level, essays focused on "the inner and outer work" of sustainability remind readers of "the personal practices and disciplines that provide the perspective and the internal stability needed to make a difference in the long run." Otherwise, even the most dedicated change agent may lose effectiveness and burn out.

One essay in particular synthesizes the possibilities and obstacles in breaking free from traditional constraints to collaborate in new ways. The Materials Pooling working group is exploring methods in which waste from one industry can become a resource for another. Through this model effort, the group has identified many unanticipated barriers to this kind of collaboration, including regulations, lack of information from suppliers, and inability to cross silos within organizations, while setting the stage for future initiatives.

Swimming Against the Stream—Together

We can't rely solely on governments or other entities to take the lead in solving global warming; each of us has a role to play. And while, in the beginning, it may feel as though we're swimming against the stream, by collaborating with others, the payoff from our efforts will be magnified ten times, 100 times, 1,000 times. Only by acting together will we hit a tipping point and make earth-friendly behaviors the norm. After all, the alternative—a devastated planet as our legacy to the next generations—just isn't an option. ◘

Janice Molloy is content director at Pegasus Communications.

TEAM TIP

According to Gershon, reading a poem, quote, or other short passage at the beginning of a meeting can connect the group to the meaning and larger purpose of what you're doing.

PEGASUS NOTES

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Based on the buzz in the ballroom, participants at our recent conference left energized and ready to lead their organizations beyond the horizon. To build on this year's momentum, we've already started to design next year's program. We're delighted to announce that Peter Senge and Otto Scharmer will be featured speakers. As a keynote speaker at each of our earlier conferences, Peter is well known for his insightful and passionate perspective on systems change. Otto is the primary researcher of Theory U, a process for facilitating profound innovation and change processes both within companies and across societal systems.

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FROM THE FIELD

John Bemis, Founder of the Creative Learning Exchange, Dies

John Richardson Bemis, 90, died at home on Monday, November 6, 2006. The founder of Acorn Houses (later Acorn Structures), in retirement, he developed a passion for education and system dynamics. He was a founder of the Creative Learning Exchange, a non-profit organization dedicated to the adoption of system dynamics in education. His interest focused on models and the creative process in problem solving. Bemis spent his last years seeking ways to bring diverse points of view together to solve world problems.

Center for Collective Intelligence

October 13 marked the launch of the MIT Center for Collective Intelligence. The Center brings together faculty from across MIT to conduct research on how new communications technologies are changing they way people work together. This first-of-its-kind research effort draws on the strengths of many diverse organizations across the Institute, including the MIT Media Lab, the Computer Science and Artificial Intelligence Laboratory, the Department of Brain and Cognitive Sciences, and the MIT Sloan School of Management.

CCI's first major initiative will be a joint project with the SEI Center for Advanced Studies in Management at the Wharton School at University of Pennsylvania and Pearson Publishing to involve thousands of people in collectively writing a book—Wikipedia-style—on how the emergence of community and social networks will change the future rules of business. For more information about the Center, go to http://cci.mit.edu. For details about becoming a contributor to the book, go to http://www.wearesmarter.org.

For information about reading and using causal loop diagrams, go to www.pegasuscom.com/cld.html.