

# Reflections

The SoL Journal  
on Knowledge, Learning, and Change



COURTESY OF AFSC

## FEATURE ARTICLES

### **Hastily Formed Networks: Collaboration in the Absence of Authority**

Peter J. Denning

### **Enabling Adaptability and Innovation Through Hastily Formed Networks**

Tracy Huston

## EMERGING KNOWLEDGE

### **Mental Models That Block Strategic Plan Implementation**

Jon Kohl

## BOOK EXCERPT

### **Learning for Sustainability**

Peter Senge, Joe Laur,  
Sara Schley, Bryan Smith

Published by The Society for Organizational Learning  
[reflections.solonline.org](http://reflections.solonline.org)

ISSN 1524-1734



**C. Sherry Immediato**

IN THIS FIRST ISSUE OF VOLUME 7 OF *REFLECTIONS*, we're delighted to focus on a new subject of inquiry among many of SoL's organizational members: hastily formed networks. Networks can spring up under a variety of conditions. Sometimes they are desperately needed when a crisis has knocked out both physical systems and social connections. In other cases, they are a more organic response to an unpredictable combination of opportunity, coincidence and timing. There are a few things that we take as givens: complexity and uncertainty call for the capacity to collaborate in the absence of authority, and we will be most effective if we build the competence for this type of interaction before the need arises.

SoL's organizational member representatives plan to share their ongoing work in this area – two examples of which are included here – with the larger community at a SoL meeting to be held this fall.

What are hastily formed networks, and what can we learn from them? In our first feature, "Hastily Formed Networks: Collaboration in the Absence of Authority," Peter Denning, a faculty member of the U.S. Naval Postgraduate School (NPS) leads off with a simple observation: disasters, such as the 2004 tsunami or Hurricane Katrina, give rise to hastily formed networks. He focuses on the results of research, some of it action learning by NPS, at the scene of these disasters, and notes that the quality of response was not related to disaster planning or equipment, but on the quality of the network that came together to provide relief. He highlights a set of research-based guidelines for effective emergency response networks that have broader applications for all of us.

One capacity that Denning emphasizes can be critical in these situations is the ability to improvise. Tracy Huston, Nissan's representative to SoL, describes using her theater background to build capacity at Nissan in "Enabling Adaptability and Innovation Through Hastily Formed Networks." Huston develops the U theory framework and connects it to the process of forming, operating and ultimately disbanding emergent networks. She uses theatre improvisation as a metaphor for effective networks, and cites a number of examples where organizations are engaged in improvisational practices to improve their flexibility, creativity, and results. Otto Scharmer, developer of the U theory, offers his commentary and encourages us to learn from the creative practices of true artists so that we can respond more generatively to our most pressing challenges.

Although many challenges call for spontaneity, we also recognize the value of effective planning and implementation. Jon Kohl has documented in detail the "Mental Models That Block Strategic Plan Implementation." While we have all had the experience of creating plans that are filed and forgotten, Kohl has focused his research on the strategic management of parks, and the specific barriers he observed in his work in this domain. The generic issues are ones we'll all recognize. In this Emerging Knowledge Forum submission, Kohl has made an especially nice contribution by creating a systems map that explains all too well the tyranny of the urgent, fueled by local realities.

This issue's book excerpt is from our newly published *Learning for Sustainability* – the first of what we hope will be many small, but important books! In this selection, "Engaging the Future," SoL consultant

member Bryan Smith provides a practical recap on using scenario planning, providing a case study that explores how different potential energy futures will affect a business. Participants at a recent SoL meeting suggested that addressing matters of sustainability, which requires the collaboration of all of us, may provide a very practical application of hastily formed networks on a wholly different scale.

Finally, as a comment on last issue's focus on learning cultures around the world, we include a reader comment from Peter Senge about the possibility of creating learning cities, particularly in China.

We have a wealth of material to investigate and share, and look forward to providing you with at least three more issues of *Reflections* this year. We may also publish short bonus issues as we continue to experiment with packaging and timing to best report on the work of the SoL community. We invite you into the conversation, and hope to hear from you on many topics!



C. Sherry Immediato  
Managing Director, SoL

## DIMENSIONS OF A LEARNING CITY

CHINA'S INDUSTRIAL DEVELOPMENT IN THE PAST 20 YEARS has stunned the world. The extraordinary release of ingenuity and imagination that is unfolding in the country holds great promise.

Today, many cities are seeking to become “learning cities” in China. What might this mean? How might it lead to a new vision of urban and regional development? How might it lead to a higher quality of living for people?

Specifically, realizing the vision of learning cities requires confronting basic questions:

- Can China realize the benefits of economic development while avoiding the destructive dimensions of development in the West: destruction of family and community structures, destruction of nature, and loss of common will and concern for the common good?
- Can China find its own path into the future that harmonizes with its great traditions and unique culture?
- Will China be an innovator or a follower in industrialization?

### What is and is not learning?

On one level we all think that we know what learning is because it is a familiar word. But, over the past ten years, with the rising popularity of learning organizations around the world, I have come to realize that there is actually much confusion around this concept.

For many people, “learning” immediately evokes images of school. This leads people to think of classrooms, school curriculum, teachers teaching subjects, tests, and grades. But teachers teaching does not produce learning. Students come to *know about* subjects often without being able to do anything that they could not do before. Academic knowledge often never gets implemented or put into practice. Schoolroom education is fragmented from the context of people’s lives, resulting in dead knowledge that is never integrated personally or socially.

“All knowing is doing. All doing is knowing.” These are the words of the famous Chilean biologist Humberto Maturana. He points to another model of learning: learning as living. From this perspective, learning is inseparable from the day to day realities of facing challenges and meeting them. It is inseparable from the context in which we live. It is inseparable from our aspirations and traumas. From this perspective, learning only occurs in action. It is never passive. It arises as we make mistakes, tell ourselves the truth about our shortfalls, forgive ourselves, and discover the sources of our errors so that we can more reliably achieve our aims. This is the process whereby we learned to walk, to talk, to ride bicycles, to be friends, to maintain loving relationships, to be parents, and to be successful in our work. It is never-ending. “Only while we sleep do we make no mistakes,” said the founder of IKEA, the world renowned furniture retailer.

*EDITOR'S NOTE: This piece was originally written in 2004, and was adapted here to complement the article in Reflections 6.8-10 entitled “Organizational Learning in China: Inroads and Implications for the Awakening Dragon.”*

The definition of learning that we have used for many years in the SoL community worldwide is: “learning is a process whereby we enhance our capacity, individually and collectively, to create the results we truly want to create.” Alternatively, we often say that “learning is a process that increases knowledge, and knowledge is the capacity for effective action.”

Famous accounting theorist, and co-inventor of activity-based costing, H. Thomas Johnson says more eloquently, “*learning is discovering and embodying nature’s patterns.*” Effective action is action that works in the world. You cannot walk without being in harmony with gravity and the design of the human musculature. You cannot talk without being in harmony with the physics of vibrations and the design of the human vocal chords. You cannot ride a bicycle without being in harmony with the principles of gyroscopic motion and the intricate balancing mechanisms of the inner ear and neuro-anatomy. Learning enables our coming into greater and greater harmony with nature, our own nature and the nature of the larger world in which we live, and realizing our intentions in the context of that harmony.

So, based on these very simple ideas, we can say a few things about what a learning city might be and not be.

### **A learning city is more than schoolrooms and training programs**

People often translate their desires to become learning organizations into creating training programs. They might even train people in the five disciplines, tools and principles that I and many colleagues have written about. But this strategy often is guided subconsciously by the schoolroom model of learning. In companies that follow this strategy, there have been predictable consequences. People become excited about the ideas and tools. Many appreciate the time to study. But eventually, people get more and more concerned about how to “transfer what they are learning” in the training session into real work settings. If not corrected, this will eventually lead to disillusionment, and people conclude that the organizational tools are not practical.

This is a sad development because it fosters enthusiasm that is not sustained. There is nothing wrong with training and schools if they can be part of a *broader strategy*. Often, training programs are very useful as ways to introduce managers or teachers or other professionals to new methods. They can be extremely effective to stimulate new thinking. They can bring people together who otherwise never get to meet, to talk, and establish relationships. If well designed, they can give people the opportunity to begin to practice with new tools. Like a meditation retreat, they can be an important start to real learning. But, they are never a substitute for daily practice. They are never a substitute for developing new capabilities in realistic settings. They are never a substitute for developing collective skills among people who must actually produce results with one another.

This is why our experience suggests that the classroom must be complemented by the “practice field.” Just as a sports team or a theatre troop practices to develop their collective capabilities, so too must we create meaningful ways for people to practice new learning skills regularly. A basketball team does not practice on a soccer field, nor does the soccer team practice on a basketball court. Practice fields are realistic settings where people face challenges like they must face in actual situations, and

where they learn to deal with those challenges along with the others with whom they must perform in those real settings. BUT, a practice field reduces the costs of making mistakes. Learning occurs through productive mistake making; so, learning is all but impossible in real settings where the costs of making mistakes is that people can be seriously hurt, companies can lose large amounts of money, or cities can suffer lost opportunities that could have benefited their citizens. The fear of making mistakes destroys learning. Yet, it is irrational to not fear making mistakes in most realistic organizational settings. That is why learning is so difficult for schools, businesses, or cities – until they discover ways to create methods for people to practice.

### ***Practice fields in everyday life***

Once we begin to understand the nature of practice fields, we discover them all around us. Children on a playground create a practice field where they can learn to work out conflicts and pursue their individual fun in ways that do not compromise others' ability to do likewise. Managers often use consultants or advisors to sound out new ideas before trying them out in their organizations. Teachers talk through new ideas with colleagues. We all simulate ideas in our heads when we think about "what might happen if . . ."

But much more can be done with some imagination.

For example, a group responsible for a city's finances who are interested in developing more skill in recognizing their "mental models" and transcending old assumptions can set aside an hour after their formal meeting to reflect together. They might use a tool like the "left-hand column case," which helps each person distinguish what they said from what they were thinking and feeling when they said it. This might lead, for example, to one person recognizing that he was rigidly adhering to his position in a debate because he believed tacitly that another member of the team was opposed to his recommendation. But because he never slowed down to recognize this assumption, he never asked the other person if it was valid. With the coaching of others on the team, he can bring this mental model to the surface, and inquire into its validity. This might lead to discovering that the other person does not actually disagree, or alternatively to discovering that she agrees with some aspects but has a different view of other aspects. Either way, the team starts to explore more deeply how each of them is thinking.

Rather than debating what is the right thing to do, a learning team starts to think together about their different ways of seeing the world. This often leads to realizing that there is crucial data that no one has, or first-hand knowledge that needs to be acquired by bringing in another expert who has not been consulted. The important point is that this inquiry into underlying assumptions doesn't usually happen because of the pressure to *make a decision*. Suspending the need to make a decision creates an opportunity to practice thinking together, which can eventually lead to better decisions.

But, practice fields are only as useful as the clarity of those learning regarding their aims. For the sports team or the theatre troop, the vision of success is clear: to be the champions, to perform together flawlessly. For a city to be a true learning city will require continual thinking about what people value. I believe this will lead people to discover common aims for the qualities in living they truly value, qualities like:

### **A place where people discover more and more of their own nature**

Genuine learning leads us back to ourselves. Beyond acquiring information and skills, learning opens a lifelong quest to become a human being. Loss of this quest has created the “great hunger” of the modern world. No amount of material progress can substitute for happiness and the sense of a life well-lived in service. W. Edwards Deming, pioneer of the quality movement, spoke of “losses unknown and unknowable.” Paradoxically, as the internet and global telecommunications connect people to an ever broader external world, most citizens of modern industrial societies live in smaller and smaller personal worlds. As our “outer circle” of information expands, our “inner circle” of self-awareness diminishes. As fragmented knowledge of the physical external world increases, integrated knowledge of self and the world as a whole disappears. We know more and more about less and less. The consequence is a growing gap between our technological prowess and our wisdom, a gap that poses the signal greatest threat to our future.

Learning cities create environments for all people to continually discover what it means to be a human being and to continue a lifelong journey of cultivation and realization.

### **A place where people learn to live more and more in harmony with larger natural systems**

The destructiveness of industrial development to larger natural systems is often taken for granted. Especially in developing countries, many simply accept pollution, destruction of habitat, and elimination of species as “the price that must be paid” for economic development. But, destruction of the natural environment is only necessary insofar as we assume that it is necessary. Technologically, there are immense possibilities for alternative energy clean infrastructures, for cars that get 200 miles per gallon, for products and services that do not generate waste and toxins. What is missing is the common will and imagination to put such technologies into practice on a large scale. Countries like China have a unique opportunity to leapfrog industrial-age energy-transport-building infrastructures, just as they have leapfrogged industrial-age telecommunications infrastructures.

Learning cities demonstrate how the pursuit of social, environmental, and economic well being can be brought back into harmony.

### **A place where children are celebrated and allowed to influence us all**

Industrial age thinking led to schools that sought to mold children to fit the needs of business and the economy. Children, and human beings more broadly, became a cog in the industrial machine, critical to both supply and demand: on the one hand a factor of production, and on the other, a consumer who defines their life goals in terms of material acquisitions. This is reflected in the design of the school as an assembly line, marching children through grade 1, grade 2, grade 3, and so on. It is reflected in teachers who see their primary job as maintaining control and imparting pre-determined, inert knowledge into the heads of children. It is reflected in the loss of an integrative concept of learning and development, replaced by an overemphasis on technical knowledge and the schoolroom model of intel-

ligence in test taking. It is reflected in “me versus you” competition among children to please teachers and climb the educational ladder. Ultimately, it scars children for life, destroying their innate love of learning and joy in working with others.

It is the mark of every golden age in human history that children are the most important members of a society. Learning cities create schools that learn and reestablish children and young people as natural leaders in building societies that learn.

These are just a few of the types of ideas that people will discover as they start to practice thinking deeply together about their genuine aspirations and working together to bring these into reality. Learning is ultimately about collective creation, people discovering and continually enhancing their capacities to create futures they truly value. Learning is about building networks of social relations based on mutuality, trust, and respect. Sustainable learning cities cultivate people as a force of nature, continually sensing what is trying to emerge that supports the whole, and then bringing it into reality.

We face a crisis of not knowing how to live together in an increasingly interdependent world. Governments cannot solve this problem. Giant corporations cannot solve this problem. Isolated prophets cannot solve this problem. The only solutions lay in people discovering new ways of living together that enhance life at all levels in nature’s community.

*Peter Senge*

# Hastily Formed Networks

## Collaboration in the Absence of Authority

Peter J. Denning



**Peter J. Denning**

**O**n September 11, 2001, terrorists attacked the World Trade Center, taking 2,749 lives. Among its other effects, the attack had a severe economic impact on airlines and resulted in a stock market loss of \$1.2 trillion. On December 26, 2004, a tsunami resulting from a magnitude 9.1 earthquake overran the shores of many countries along the vast rim of the Indian Ocean. More than 283,000 people died. On August 29, 2005, Katrina, a Category 5 hurricane, knocked out electric and communications infrastructure over 90,000 square miles of Louisiana and Mississippi and displaced 1.5 million people. Six months later, New Orleans still housed fewer than 100,000 of its original 1.2 million residents. On October 8, 2005, a magnitude 7.6 earthquake devastated the Kashmir region of Pakistan, killing more than 87,000 people. Besides being unexpected major disasters, these events had one other common feature. They all involved hastily formed networks that quickly mobilized, organized, and coordinated massive humanitarian responses.

The severity of these disasters drove home an important point: The quality of the response depended not on disaster planning or on new equipment, but on the quality of the network that came together to provide relief. How quickly were voice and data communications restored? How well did the many players from disparate organizations collaborate? How effectively did the network deliver help to the victims? These incidents demonstrated sharp differences in the quality of the hastily formed network (HFN), resulting in great differences in the effectiveness of the response. Noting that these networks almost always involve military, civilian government, and non-government organizations, the US Departments of Defense and Homeland Security have made it a priority to learn how to effectively assemble HFNs. We coined the term at the Naval Postgraduate School in October 2004.

The lessons learned from the government networks carry directly into private settings. These lessons will benefit any urgent network of multiple organizations with no common authority that must cooperate and collaborate.

### Origins

The idea of quickly forming a team for a particular, urgent task, and then disbanding it when the task is complete, is not new. Table 1 lists three categories of events to which a hastily formed network must respond. Because it involves relatively small teams and known networks, the first category is the easiest and least likely to stress the HFN.

The middle category is the type that emergency agencies such as police and fire departments prepare for. They have professional, highly trained teams ready to respond to particular incidents. They have well-developed practices for advance planning, training in appropriate

Table 1: Kinds of Events Requiring Response from Hastily Formed Network

CATEGORY	CHARACTERISTICS	EXAMPLES
<b>K:</b> <b>Known</b>	Know what to do Can use existing network structures May choose not to respond	Fast response team for time-critical business problem or opportunity
<b>KU:</b> <b>Known</b> <b>Unknown</b>	Know what to do Don't know time or place Responding network structure known	Local fire, small earthquake, civil unrest, military campaign
<b>UU:</b> <b>Unknown</b> <b>Unknown</b>	Don't know what to do Don't know time or place Responding network structure unknown	9/11 attack, other terrorist attacks, large earthquake, major natural disasters (Note: KU events can become UU events when scaled up to large areas or populations)

skills, and positioning of equipment. They already use terms like “ad hoc network” and “crisis response network” to describe what they do.

The third category puts the greatest stress on the HFN. These events require response beyond the control and capabilities of any single agency. The network structure will depend on the event and the responding organizations.

The main aspects of the third-category challenge are:

- **Genuine surprise.** The precipitating event is in no known category. There has been no advance planning, training, or positioning of equipment.
- **Chaos.** Everyone is overwhelmed. No one understands the situation or knows what to do. People are frantic and panicky.
- **Insufficient resources.** Available resources and training are overwhelmed by the magnitude of the event.
- **Multi-agency response.** Several agencies must cooperate in the response, including military, civilian government, and private organizations. These groups have had little or no prior reason to collaborate. The shock of moving from a state of “coexistence” to a state of “collaboration” can be overpowering.
- **Distributed response.** The response is distributed over a geographical area into many local jurisdictions. The authority to allocate resources and reach decisions is distributed among many organizations. Decisions by command-and-control do not work.
- **Lack of infrastructure.** Critical infrastructures like communications, electricity, and water do not work. Makeshift infrastructures need to be deployed quickly.

## HFN Defined

The first priority after the precipitating event is for the responders to communicate. They want to pool their knowledge and interpretations of the situation, understand what resources are available, assess options, plan responses, decide, commit, act, and coordinate. Without communication, none of these things can happen: The responders cannot respond. Thus the heart of the network is the communication system its members use and the ways they interact within it. We call this the “conversation space” of the HFN.

An HFN has five elements. It is a network of people who:

- Come together rapidly
- Must work together to fulfill a large, urgent mission
- Represent different communities
- Work in a shared conversation space
- Plan, commit to, and execute actions together.

An HFN is thus much more than a set of organizations using advanced networking technology. To be effective in action, HFN participants must be skilled at:

- Setting up mobile communications and sensor systems
- Conducting interagency operations, sometimes called “civil-military boundary” operations
- Collaborating on action plans and coordinating their execution
- Improvising
- Leading a social network, where communication and decision making are decentralized, and there is no hierarchical chain of command or *ex officio* leader.

Most participants do not have need for such skills in their individual organizations. When they come together, therefore, they find it difficult to accomplish tasks that require those skills. When these inherent difficulties are combined with the overwhelming nature of the urgent event, a breakdown in the conversation space can occur.

## Conversation Space Defined

The ongoing need to communicate and coordinate is fundamental for the success of any HFN. As mentioned above, we introduced the term *conversation space* for the medium in which all this – from forming community responses to delivering actions – takes place. The conversation space is a medium of communication among a set of players who have agreed on a set of interaction rules. These three aspects are summarized in Table 2 (page 4).

One of our early conclusions was that the effectiveness of the HFN rests on the quality of the conversation space established at the outset. It is not a foregone conclusion that an effective HFN can be established even when the players are trained professionals, as the situations in New York City after 9/11 and in New Orleans after Hurricane Katrina illustrate. In New York, in the days following the collapse of the Twin Towers, then-Mayor Rudy Giuliani understood intuitively that success would depend on ensuring that everyone, especially the residents of the city, felt included in the relief effort. He made sure information was shared, even if it was piecemeal. Although there were some initial coordination difficulties, the network came together and was effective in relief and recovery. A different picture occurred in New Orleans. The various agencies had major difficulties in coordinating, and the Federal Emergency Management Agency (FEMA) did not deliver what people thought it had promised. At all levels, there was a



Table 2: Components of Conversation Space

CATEGORY	CHARACTERISTICS	EXAMPLES
<b>Physical systems</b>	Media and mechanisms by which people communicate, share	Telephone, power, roads, meeting places, supplies, distribution systems
<b>Players</b>	Individual and group participants and their roles, core competencies, and authority	Citizens, fire department, police department, highway department, Federal Emergency Management Agency
<b>Interaction practices</b>	Rules of the “game” followed by the players to organize their cooperation and achieve their outcomes	Situational awareness, information sharing, planning, decision making, coordination, unified command, authority, public relations. (The environment has no common authorities, no hierarchy, many autonomous agents, and decentralized communications.)

lot of finger-pointing and wrangling over who would do what and who would pay for what. When the president installed a new director at FEMA, no immediate improvement in effectiveness occurred, and criticism of the agency continued unabated. Attempts to impose standard military style command-and-control in Louisiana and Mississippi were ineffective.

These examples are not intended as a criticism of New York, Louisiana, or Mississippi officials, but rather an illustration that effective coordination may not happen even when all the parties want it to happen.

Certainly a major difference between events in New York and New Orleans was the sheer scale. New York lost infrastructure in a limited area of perhaps 100 square blocks. The primary agencies in the network ultimately reported to the mayor. Police and fire radios provided basic communications in the “ground zero” area. In contrast, New Orleans lost an entire city and was part of a large area (90,000 square miles) with severely damaged infrastructure. All communication systems were knocked out, and as they were gradually being restored, the limited-bandwidth channels were overwhelmed by the sheer numbers of the citizens trying to use them. Many more agencies had to cooperate on the response. Coping with all this effectively was completely outside most responders’ experience.

New York City quickly built trust among the responders and citizens. New Orleans experienced considerable difficulty in building trust. This is one of our conclusions: The more overwhelming the event, the more likely turf-asserting tendencies will show up and interfere with the effectiveness of the network.

The overarching lesson is that the effectiveness of an HFN depends as much on the participating people and organizations as it does on the communications system through which they interact.

## Conditioned Tendencies

It is well known that individuals under severe stress forget their recent training and regress to old, ingrained habits (Barthol & Ku, 1959; Weick, 1995). Richard Strozzi-Heckler (1984, 1993) calls these old habits “conditioned tendencies.” The old habit is likely to be inappropriate for the current situation and to make matters worse.

The National Institute of Standards and Technology (2005, p.174) concluded that “a preponderance of evidence indicates that emergency responder lives were likely lost at the World

Trade Center resulting from the lack of timely information-sharing....” Police radio transcripts cited by NIST indicate that NYPD helicopters monitoring the two burning towers detected signs of structural collapse in the North Tower and issued an emergency evacuation order to all police. Yet no one in the police department communicated the imminent-collapse information to the fire department. What accounts for this bizarre behavior?

Joseph Pfeifer, a deputy assistant chief in the New York City Fire Department, gives in his master’s thesis (2005) a detailed example of conditioned tendencies instilled by emergency-response organizations, which paradoxically can render them incapable of effective response in an emergency. Pfeifer was among those responding to the 9/11 disaster in the World Trade Center. His explanation for the noncommunicative behavior was that organizational biases – ingrained social habits within the separate organizations – prevented emergency personnel from talking to one another. One of these biases is organizational social identity that prefers to share information within the group but not outside it. Under stress, the group members do not think to collaborate or share information outside the group, or to take personal responsibility for the welfare of members of other groups.

The purpose of Pfeifer’s study was not to assign blame for needless loss of life in the 9/11 disaster, but to recognize the organizational conditioned tendency as a real phenomenon that can disable an HFN. The question is how to prepare organizations to work together in an HFN and avoid the conditioned tendency. Pfeifer proposed that the agencies use unified com-



COURTESY OF AFSC

mand networks, in which leadership is shared among different organizations; for example, an executive committee. This practice will likely create the foundation for HFNs that do not suffer noncommunication paralysis.

## A Guide to Effective HFNs

Understanding how to create effective HFNs is a challenge, but the following guidelines offer a framework for ensuring that a network, its people, and its equipment will function well under extreme stress.

(1) Ensure the high quality of the conversation space, which is critical to success. The space includes the communication systems, the participants, and their interactions within these systems. Effectiveness in conversation space rests on skills that participants may not ordinarily learn in their separate organizations.

(2) Address the physical communications systems, which are part of the conversation space. Plan and test mobile technologies that can be set up quickly when the regular infrastructure is down. Arrange for security forces to protect the temporary infrastructure. Use and test all communications equipment regularly. Use standard software and protocols – interoperability and simplicity of interconnection will be important. Web services are a good example.

(3) Create a collaborative “executive committee” that all participating organizations can call on during the crisis. Dissimilar organizations are another part of conversation space. Each has its own culture, standard practices, and decision-making protocols, and they may be incompatible with those of other organizations. Individuals can become disoriented when familiar organizational practices are suspended. They fail to take initiative, while waiting for orders that will never come. They

do not know how to function when there is no common authority; their established command-and-control practices do not work; and collaboration, not control, is the only way to get actions done.

(4) Pay special attention to the key technical issues of interoperability and simplicity. Services offered via web interfaces are highly interoperable; anyone can use them from any computer. Chat and text messaging services are highly interoperable. But many key services are not. For example, many responders have found the Groove software to be useful for coordination, but Groove runs only on Windows computers; those with Sun workstations, Apple Macintoshes, or Linux computers are out of luck. Many wireless networks are not fully interoperable, e.g., Linux and Apple machines use different protocols from Windows machines for encryption and passwords.

(5) Expect that information glut will be a problem in the network. As communications are initially restored, the survivors involved in the event will overload the severely limited bandwidth as they try to communicate with their families. The emergency responders themselves will overwhelm their colleagues with situation reports and other data. In crises especially, the participants need to make most effective use of the limited resources of decision-making time and communications bandwidth by using new technologies to restrict the flow of unimportant bits. Hayes-Roth (2006) shows how a well-designed information system can reduce information volume by a factor of 100,000 without loss of effectiveness.

***The purpose of  
Pfeifer's study was  
not to assign blame  
for needless loss of  
life in the 9/11 disas-  
ter, but to recognize  
the organizational con-  
ditioned tendency as a  
real phenomenon that  
can disable an HFN.***



(6) Understand and practice the use of the technologies effective for collaborative networks. These include Web servers to distribute information, wiki and discussion-thread software, chat and instant-messaging services, virtual markets, and groupware.

(7) Prepare to overcome the barriers to interorganizational collaboration. These include conflicting missions, unclear roles, turf protection, incompatible processes and information systems, disparate cultures, lack of accountability, mistrust, and lack of knowledge of others' capabilities (Hocevar et al., 2004).

(8) Prepare for organizational conditioned tendencies to appear under overwhelming stress. Train group members in the basic HFN skills. Promote political support for the organizations to cooperate, mutual respect for the competencies that each organization brings, concern for one another's welfare, and personal responsibility for actions and outcomes. Practice with "unified command" –an executive committee representing the participating organizations that respects the core competencies that each organization brings.

(9) Train participants in the skill of improvisation. This is a challenge for normal rule-oriented agencies, but the benefits of doing so can make a significant difference when stressful situations arise. The article following this one, by Tracy Huston, explores the possibilities of using theater improv techniques in developing the capacity for effective action.

#### **ABOUT THE AUTHOR**

**Peter J. Denning** is director of the Cebrowski Institute for information innovation and superiority at the Naval Postgraduate School in Monterey, California, and is a past president of the Association for Computing Machinery (ACM).

*pjd@nps.edu*

## **References**

- Barthol, R.P., & Ku, N.D. Regression under stress to first learned behavior. *Journal of Abnormal and Social Psychology* 59 (July 1959), 134-136.
- Hayes-Roth, F. Two theories of process design for information superiority: Smart pull vs. smart push. *Command and Control Research and Technology Symposium: The State of the Art and the State of the Practice*. San Diego, CA, US Department of Defense, Command and Control Research Program (CCRP). (2006, to appear)
- Strozzi-Heckler, R. *Anatomy of Change*. North Atlantic Books (1984, 1993).
- Hocevar, S., Jansen, E., & Thomas, G. *Building Collaborative Capacity for Homeland Security*. NPS Report (December 2004). <http://www.nps.navy.mil/Research/04tech rpt.html>.
- National Institute of Standards and Technology. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: The Emergency Response Operation*. Washington, D.C. (2005)
- Pfeifer, J. *Command Resiliency: An Adaptive Response Strategy For Complex Incidents*. Naval Postgraduate School MS Thesis, September 2005. <http://library.nps.navy.mil/uhtbin/hyperion/05Sep%5FPfeifer.pdf>
- Weick, K. *Sensemaking in Organizations*. Sage Publications (1995), 102.

© Copyright 2006, Peter J. Denning.

An earlier version of this article was published in *Communications of ACM* 49, 4 (April 2006), 15-20.  
Reprinted with permission.

# Enabling Adaptability & Innovation Through Hastily Formed Networks

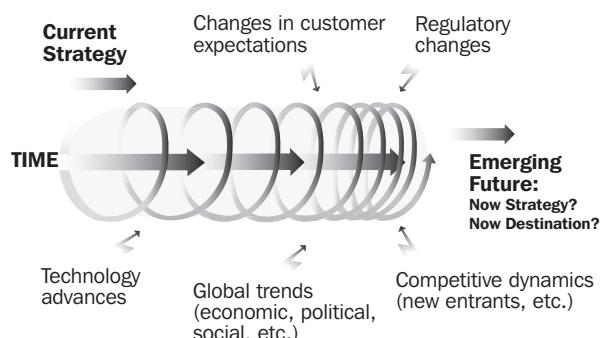
By Tracy Huston



Tracy Huston

**A**t Nissan, we have been exploring methods for helping individuals and groups respond to the dynamic of constant change and uncertainty. Our goal is to “continually increase our collective capacity to create the future we want.” The intended outcomes of the work concern enhancing our ability to adapt as new conditions emerge, and to innovate in ways that generate significant value given new conditions. We have been working on the premise that our ability to adapt and innovate requires both personal and organizational transformation, and we have made great progress drawing from emergent thinking about the nature of systemic change. The problem is that our prevailing structures and systems – and our leadership roles within them – often present insurmountable obstacles to adaptability and innovation. The hierarchical structures and modes of leadership in practice at Nissan – indeed, at most large organizations today – are based on a mechanistic view of organization that stems from the Industrial Revolution, a time and context altogether different from today’s. Hierarchical structures were intentionally designed as fixed systems to ensure stability and control; they were not intended to allow for change, adaptability, and innovation. Although most leaders now recognize the need to approach their organizations as “living systems,” and to move away from command-and-control forms of governance to more generative, self-organizing practices, the hierarchical structures remain embedded, impeding individual and organizational performance.

The Change Dynamic



Members of the Society for Organizational Learning (SoL) have been engaged in exploring questions about hierarchical versus self-organizing structures as well, looking at alternatives. One such structure is a *hastily formed network* (HFN). The term was coined by the Naval Postgraduate School (NPS) to describe the multi-organization groups that come together to create coordinated action in crises, such as hurricane Katrina, the December 2004 tsunami, and the September 11, 2001, attack on the World Trade Center.<sup>1</sup> These multiple groups – the firefighters and police officers, the military and local government, civilians and non-governmental agencies – must somehow quickly mobilize in response to crises. The challenge for HFNs is that all of the different groups of responders must be able to take “coordinated action” *collectively*, to adapt and innovate under rapidly changing, uncertain conditions, and

to do so *without centralized authority*, and without a common set of information, skills, protocols, and processes. Whereas most responders operate well within their own hierarchical structures, analysis of disaster response efforts reveals that collaboration across groups is often ineffective or absent.

Disaster response is only one example of a situation in which multiple organizations must respond to a shared challenge; HFNs occur in many other contexts as well – whenever cross-functional, cross-company, or cross-sector groups must take “coordinated action” in response to a new, unfamiliar challenge, and somehow generate an innovation that enables them to deal with the challenge. The question for Nissan and other members of the SoL community is “What can we learn from the alternative structures and types of leadership being developed for HFNs so as to enable adaptive and innovative coordinated action within and across our own organizations?”

Based on extensive research at NPS and performed by members of the SoL community, Part I of this article lays out some hypotheses about ways of approaching the HFN challenge by using U-Theory. Part II builds on research conducted at NPS and at Nissan in using improvisation concepts and methods as a means for developing adaptive, innovative, self-organizing structures. The intent is to provide a model for alternative structures and modes of leadership that might improve the effectiveness of HFN, as well as allow for the development of adaptive, innovative cultures in large organizations and multi-stakeholder systems.

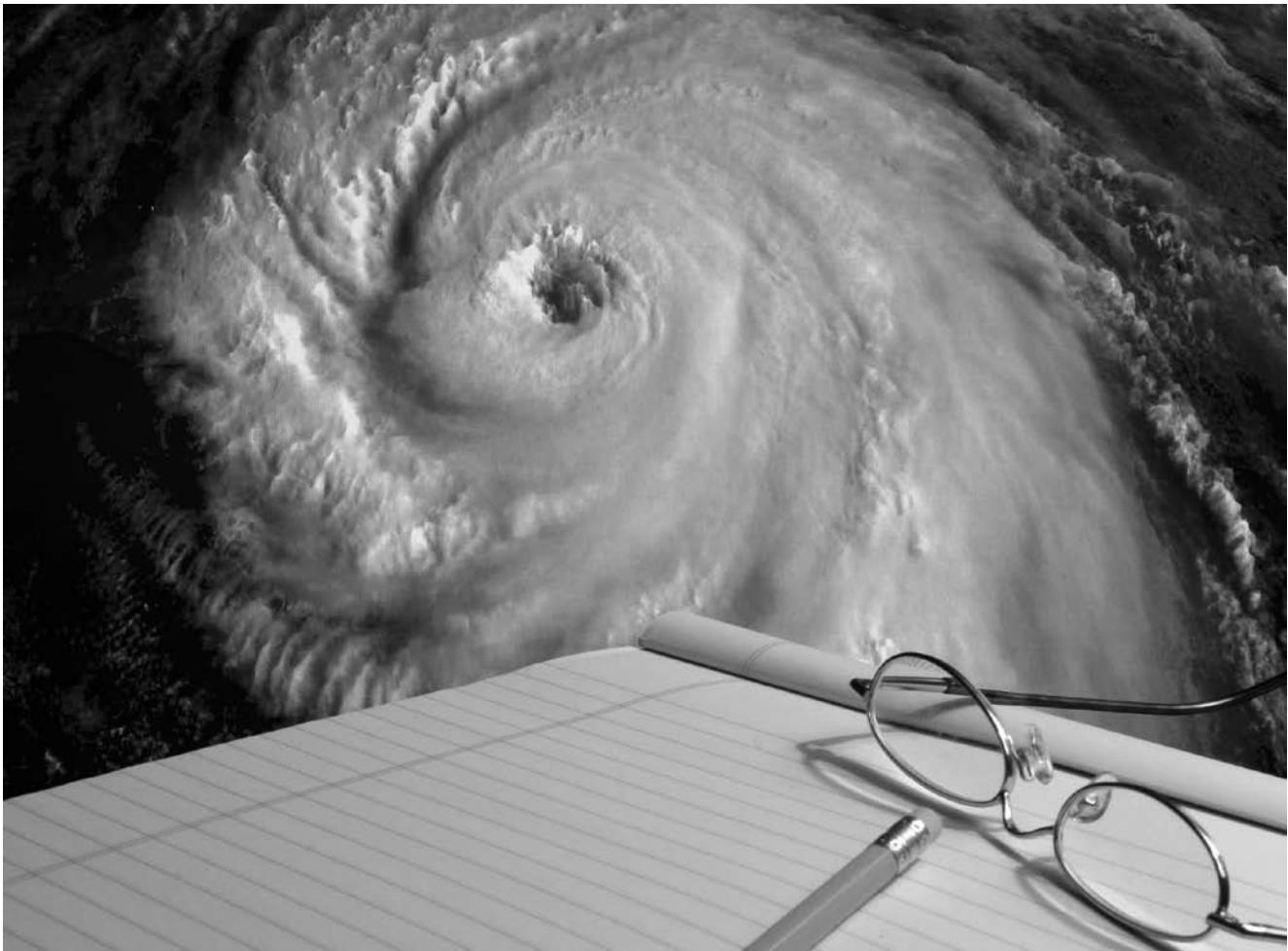
## **Part I: Exploring Hastily Formed Networks Through the U-Theory**

### **Hypotheses**

In late 2005, SoL Liaison Officers (LOs) – representatives from SoL organizational member companies – decided to collaborate in ongoing work to address the challenges and opportunities of HFN, both to support the NPS mission of improving disaster response and to develop models that might improve multi-stakeholder collaboration in and among our own institutions. In preparation for a meeting of liaison officers in March 2006, the LO meeting design team began exploring some of the challenges by drawing from the research and thinking at NPS, as well as our own experiences in our respective organizations. What emerged over the course of many dialogues was the sense that we need to explore “new ways of being” that might better enable coordinated action among diverse, multi-stakeholder groups, particularly in response to crises or new and unfamiliar conditions, where the familiar infrastructures, rules, and roles would suddenly no longer apply. As a starting point, a couple of hypotheses emerged about what we might need to create in order to improve the effectiveness of an HFN:

#### ***Hypothesis: Minimal structures can better enable both self-organization and coordinated action; generative systems can transcend context.***

A system (defined here as the set of language, roles, structures, processes, and practices that organize individual and collective action) can fail when key elements are missing, such as when infrastructure is damaged by a natural disaster, or when “foreign” subsystems are combined but operate independently of one another – parts without a whole. One tragic example is recounted in Peter Denning’s article about HFN, in which he describes analysis



of the disaster response efforts after the attack on the World Trade Center: New York Police Department (NYPD) helicopters that had been monitoring conditions by circling the towers had observed signs of structural collapse in the North Tower and immediately issued an emergency evacuation order to all police; however, they failed to inform the firefighters, who, having had no warning, were not evacuated. There's no doubt that both the NYPD and the firefighters performed heroically, beyond what most of us might imagine possible. And, by most accounts, the command-and-control hierarchies that governed each independently also functioned quite well in guiding independent action. The example raises the question, however, about how to shift independent action to interdependent collaboration across groups when there is no super-structure to support it. The same question applies to corporations, where complex webs of multi-stakeholder relationships are needed to design, manufacture, and distribute products in ways that can require a high degree of innovation to deal with often sudden and large-scale changes in technology, regulations, consumer preferences, or competitive dynamics.

Fixed structures provide clarity and order, but usually only within the finite contexts for which they were designed; they can easily fail us when new conditions arise, catastrophic or otherwise. They are contextually confined. As many of us have experienced in business, contexts like globalization present an ever-evolving and highly complex challenge on a scale that traditionally centralized structures struggle to address. Fixed structures also typically operate via centralized, hierarchical authority; when multiple stakeholder groups are needed, there is

no central authority, rendering the whole less effective. Attempts at creating superstructures that can govern multiple stakeholder groups often fail, as we saw with the US Federal Emergency Management Agency (FEMA) in its efforts to coordinate interagency action during the response to hurricane Katrina – an abominable failure that resulted in delayed relief and unnecessary loss of life. Although improvements to superstructures like FEMA can no doubt be made, the feeling is that the inherent limits of hierarchical structures may continue to impede multi-stakeholder response. Thus, rather than overlaying superstructures to govern multiple stakeholders, the hypothesis is that employing *minimal* structures such as those used in improvisatory systems in the arts might enable greater degrees of self-organization and adaptability to new contexts.

**Hypothesis: Enhanced performance of multi-stakeholder systems must occur on both the individual and collective levels.**

Implicit in this hypothesis is the assumption that systemic transformation is dependent upon personal transformation. Dispensing with the familiar roles, structures, and rules in order to enable new forms to emerge can require deep personal will and courage, as well as new ways of being as a collective. The challenge here is that our mental models and, consequently, our actions have been shaped by mechanistic systems, often from our early school-age years and continuing through most of our professional lives. Our behaviors become habituated, deeply embedded, making personal change very difficult. We will need to do deep work in “de-mechanizing” our *selves* in order to participate in a large, dynamic, and generative field of change.

In addition to the disaster response challenge, the two hypotheses might be tested in any context in which:

- Large-scale, disruptive change creates a sudden shift in conditions that affect the whole system, thus requiring immediate and coordinated response from multiple groups (e.g., a labor strike, such as the Longshoremen’s Union strike that shut down the ports on the entire West Coast of the U.S.)
- A high degree of self-organization is needed to generate an innovation that can address a complex problem or opportunity for which there is no precedent or model (e.g., rapid development of an advanced technology, such as Toyota’s breakthrough 18-month hybrid car design)
- A significant change in the deep structure of a system is needed for the system to survive under new conditions (e.g., brick-and-mortar transition to e-distribution and new IP models, such as have occurred in the music industry)
- A shift in culture is needed to develop more adaptive, innovative behaviors throughout the system (such as those being undertaken in the leadership development programs and evolving organizational learning practices of many companies today).



### **Applying the U-Theory to HFN**

Although the scope and scale of challenges vary widely, the SoL Liaison Officers have come to see that HFNs occur naturally in many places, from self-managed work teams to large systems such as supply chains. What is common to all HFNs seems to be the need to deal with both the structural and the relational aspects of the profound change needed to create more

adaptive, generative systems. The U-Theory<sup>2</sup> encompasses both the structural and relational, the systemic and personal aspects of transformation, providing a rich framework through which to test and further explore the hypotheses. Thus, the SoL LO meeting design team began to explore the challenges and opportunities of HFN through the framework suggested by the “U.”

## U-Theory

Developed through years of research conducted by Otto Scharmer, Joe Jaworski, and many other thought leaders, and recently explored through the book *Presence* (Senge, Jaworski, Scharmer, and Flowers, 2004), U-Theory lays out three fundamental “spaces” for transformation, and a set of “capacities” needed to effectively create and participate within these spaces.

The journey through the “U” weds the personal with the systemic aspects of transformation, generating the will, the vision, and the concrete embodiments of the innovation we seek to create through a highly generative and intensely focused field of change.

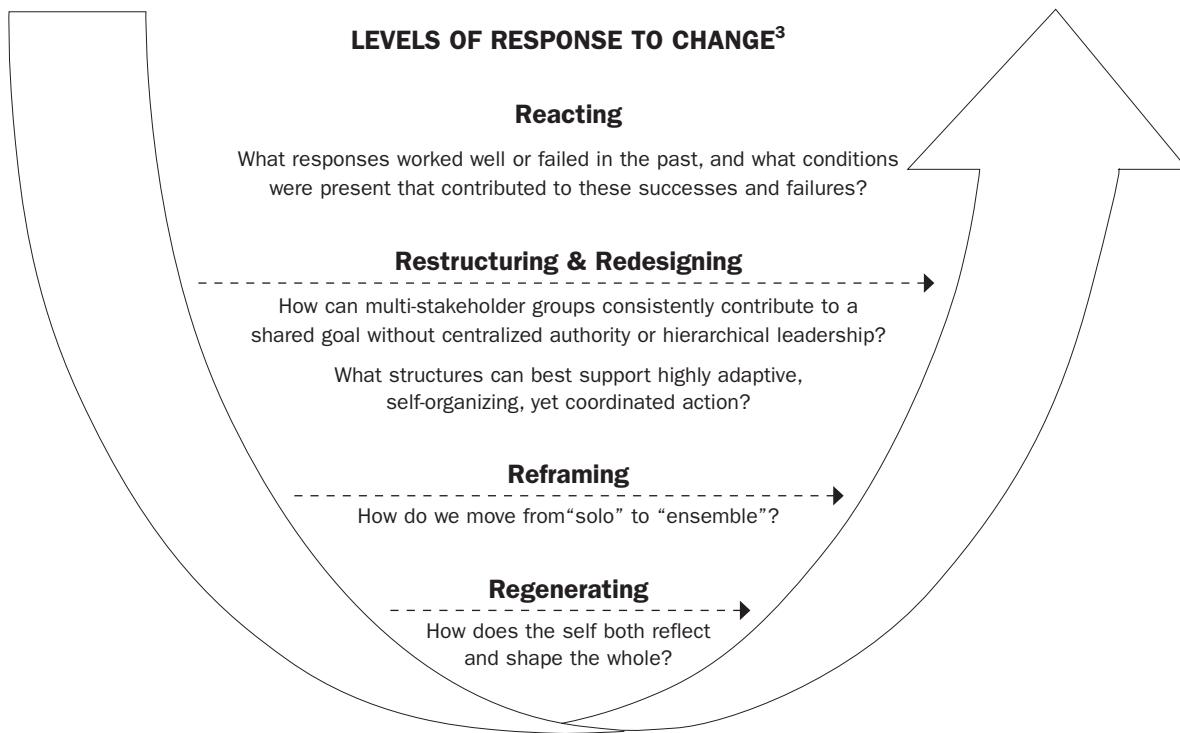
In addition to use of the theory among the SoL liaisons in approaching HFN challenges, U-Theory is being applied in addressing cross-sector innovation opportunities (such as through the SoL/MIT-sponsored ELIAS network), and in enhancing leadership development and organizational learning practices at Nissan.

For detail on U-Theory, see *Theory U*, by C. Otto Scharmer (forthcoming).



## HFN-U

In applying the U-Theory to the HFN challenge, we began by intentionally exploring the different levels of response to change that the theory suggests (depicted and described below). Working from our two hypotheses, we framed a set of focal questions within the U, as successively deeper layers of exploration and ways of being.



**Reacting** occurs when we respond to a new condition by doing what we have always done; it is based on learning from the past. It is a tactical response, often short-term in nature. Sometimes it works; however, when challenges persist, a deeper level of response is needed.

Sometimes conditions change in ways that require us to make changes to the deep structures of the system. Responding to change by **Restructuring & Redesigning** requires us to look at the underlying processes and organizational structures that are needed to enable effective performance within the new context.

Most organizations that survive for any length of time are adept at Reacting and Redesigning & Restructuring. However, as research shows, most reengineering efforts fail – 70 percent, by some accounts. Why? Scharmer and other thought leaders suggest that a deeper level of response is needed, **Reframing**. Responding to change by Reframing involves questioning our deeply held assumptions, our mental models. By doing so we can deepen our perceptions of the forces at play, and how these might be interacting and changing. Once assumptions are made known, and questioned, we can open ourselves to new ways of seeing; it is more possible to adapt to changing conditions in harmony with them.

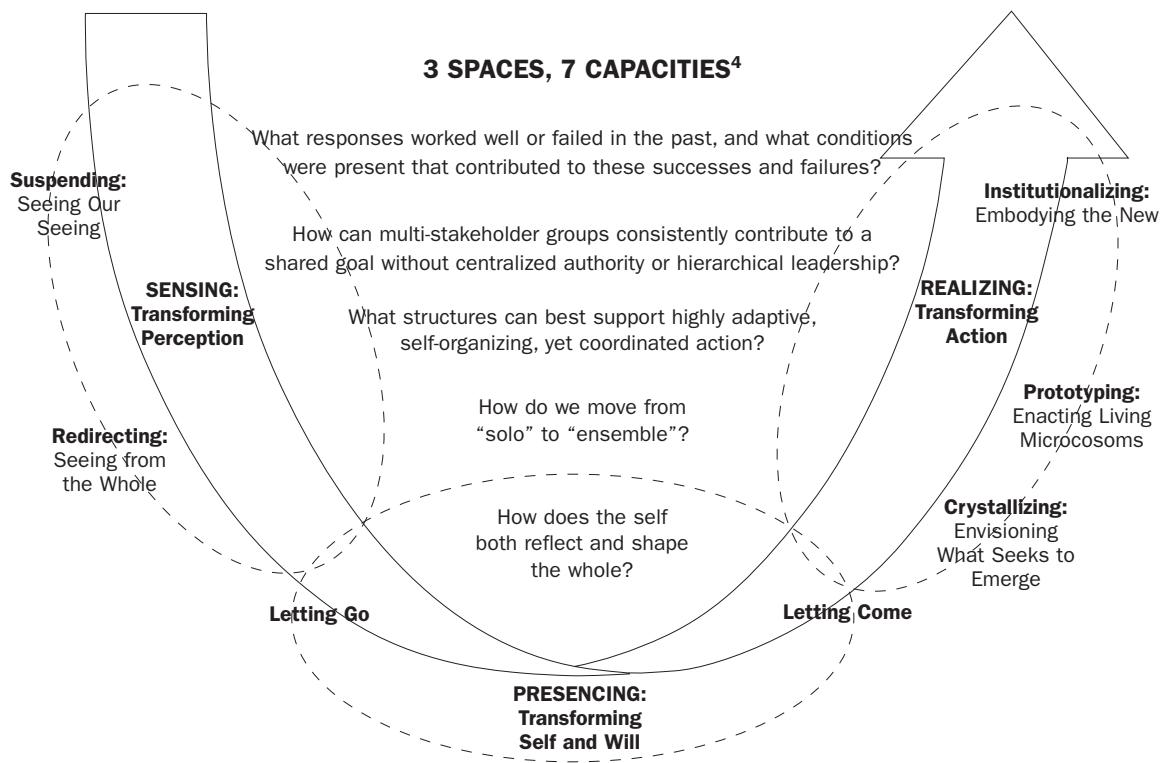
Although the process of Reframing can do much to deepen perception and, hence, the quality of our thought and actions, Scharmer and others suggest that significant and sustainable change occurs when it is the result of a deeper sense of purpose, aspiration, and will. **Regenerating** (alternately referred to as “presencing”), is the process by which leaders connect to the source of such aspiration and participate in a larger field of change.

At Nissan we have adopted this practice of framing focal questions within the U, a discipline that has helped us to see the many facets of change we wish to undertake; the focal questions differ depending upon context, but the discipline of reflecting on each successive level of response is retained.

Next, to test and more deeply explore our HFN hypotheses, the LO group began reflecting on the U, wondering:

- How do we approach the HFN challenge in ways that link the individual and collective capacities needed?
- How do we shift mental models about *needing to know*, and instead become comfortable with *not knowing*, with uncertainty?
- What is involved in the process of “letting go” so we can “let come” new ways of being?

To get at the deeper levels of being, we approached the focal questions by looking at the U-Theory’s three spaces for transformation, and the capacities required to create and participate in each space.



Framing the focal questions led us to ask: What are the core methods, practices, and skills needed to develop the U-capacities, and in ways that might improve the effectiveness of HFNs? Although there are many possible methods to draw from, given the unpredictability of the contexts in which HFNs must operate, as well as the need for adaptive minimal structure, we have been exploring what we might learn from improvisation techniques in the arts. Improvisation techniques from the theater combine the capacities for Sensing, Presencing,

- and Realizing into something like an “innovation field.” These techniques can be used to:
- (1) Develop the capacities among individuals and groups to *prepare them* to work as a self-organizing, multi-stakeholder collective (per the focal questions above).
  - (2) Prototype generative solutions for how these minimal structures might be used to improve coordinated action.

The following, Part Two of this article, explores some of the principles and methods of theater improvisation that might be applied in addressing the HFN challenge, within a variety of organizational and multi-stakeholder contexts.

## **Part II: Theater Improvisation as a Metaphor for Effective HFNs**

### **Why Theatrical Forms of Improvisation?**

Most large, complex systems in use today rely on:

- Fixed structures to govern process and relationships
- Hierarchical command-and-control authority to govern decision-making
- Roles defined by preconceived job descriptions and often narrowly defined tasks
- Linear and often slow processes of first planning, then executing fixed plans (or, in more sophisticated systems, adding reflection and learning at points in the process).

Many of these features of large systems today are, obviously, antithetical to innovation, self-organization, and generative change, as well as to large-scale, multi-stakeholder rapid response.

***“Theater is the capacity possessed by human beings to observe themselves in action. Humans are capable of seeing themselves in the act of seeing, of thinking their emotions, of being moved by their thoughts. They can see themselves here and imagine themselves there. They can see themselves today and imagine themselves tomorrow. This is why humans are able to identify, rather than merely recognize, themselves and others. . . To identify is to be able not only to recognize within the same repetitive context but also to extrapolate to other contexts; to see beyond what the eye sees, to hear beyond what the ear hears, to feel beyond what touches the skin, to think beyond what words mean.”***

— AUGUSTO BOAL

The improvisational systems derived in the performing arts were developed outside (and even in opposition to) the mechanistic systems of large institutions. These more generative systems were designed to nurture both the self and the collective, to facilitate self-organization and continuous innovation, and to enable deep collaboration in service of a larger purpose. Improvisation in the arts is, by design, a group learning and discovery process, one that is not confined by fixed structure and is not dependent upon hierarchy. The questions are: “What can we learn from improvisation that might be used to address the limitations of multi-stakeholder systems and their typically mechanistic structures, and what might we adapt to improve the performance of HFNs?”

Improvisation in theater is based upon a set of *interdependent* principles that govern individual and collective work. There are many principles used in theater improvisation; those most relevant to our HFN hypotheses and the focal questions we hope to explore are:

- Situation (not structure)
- Role and intention (not task)



- Ensemble (not hierarchy or centralized authority)
- Discovery (not plans)
- Space (physical, relational, and spiritual)  
(These principles are described in the following sections.)

The principles and the practices used to uphold them might be adapted to complex multi-stakeholder systems in order to address some of their limitations. Taken as a whole, they might provide:

- A model for self-organizing, minimal structures that transcend context
- A set of practices that might be used to develop the capacities of individuals and collectives to operate effectively within these new structures

Additionally, as many of our interests reside at the “bottom” of the U, the improvisation techniques might provide new methods for developing Presencing capacities. Improvisation is walking into the unknown, without a script or a plan, to uncover what seeks to emerge through us, and to co-create a future. The methods used by actors merge individual will with the larger field of change that occurs throughout the improv, with equal emphasis on personal transformation and reliance on all the players to make the play. Improvisation by its nature forces confrontation with both the self and the other, attention to each moment and the future that is emerging, and exploration of the detail of each concrete action as a way to access and shape the whole.

The following sections describe each of the principles, with examples of how we have begun to experiment in applying them. Note that the principles and techniques can be applied by anyone – no acting experience is required!

***“All human beings are actors  
(they act!) and spectators  
(they observe!). They are  
spect-actors.”***

– AUGUSTO BOAL

**Situation (not structure):** In exploring our HFN hypotheses, a central theme has been “minimal structure” as a means of allowing self-organization in the absence of a central authority. A related idea is that the minimal structure must not be fixed (that is, a smaller version of a hierarchical structure), but rather fluid, so that the diverse players in the HFN can adapt to unfamiliar and rapidly changing conditions. These challenges led to the exploration of this first principle in improvisation, where the unifying and guiding force is the situation itself, and not a preordained and fixed structure. For example, in rehearsal of a play, the script provides a relatively fixed structure, flexible only in interpretation by the artists; in theater improvisation, there is no script. Interaction among the actors in an improvisation is not governed by any fixed structure, but rather by the *situation*. The situation is given to the actors, who then co-evolve events and outcomes, co-creating the play. The situation defines the context and the reason to engage as an individual and collective: There is a clear problem or opportunity to address, but no script or plan to follow, and no preassigned structures through which to approach the situation. Thus, a system defined by the principles of improvisation is not contextually confined by any structure – it is free to (and must) adapt to each new situation (each new improv) as each situation unfolds, in a dynamic, generative process.

#### Example Improv Situation

**Two brothers are going into a small-town bank, intending to rob it. Both have guns. There is an armed security guard inside, many customers, and a few bank employees. Robber A's intention is to get the money and escape without getting caught. Robber B was coerced by his older brother, Robber A, to participate in the robbery. Robber B's intention is to make sure that no one gets hurt.**

becomes a discovery process whereby each actor is acting upon the situation and adjusting to the actions of the others – who may be in conflict. *It is the shared understanding of the situation in which all are engaged that structures the unfolding performance, along with the sacred agreement that the actors must engage each other (despite conflicting intentions) in such a way that a “play” that makes sense can emerge; these two factors are the springboard for self-organizing, generative performance in the absence of a fixed structure.*

**Representative approaches:** Actors are trained to expect and engage in dynamic situational contexts as a collective. This process involves discovery and many of the other principles described below, as well as acceptance and embrace of the unknown, of not knowing, and of the need to create the “future” – the play that is unfolding. The example situation (text box on this page) is typical of the “minimal structure” given to actors performing an improv. In this example, the actors know only the situation they are walking into; they do not know how it will evolve or end, and they have no plans to follow; yet they can play the scene.

The process actors use to understand and deepen their perceptions of the situation requires Sensing capacities: to first “see our seeing,” so as to notice our own intentions and attitudes toward the situation and the others in it, and then to open ourselves to “seeing from the whole” (i.e., the situation that is emerging). Given the example situation, the actor playing Robber B must see his desire to keep people, including himself and his brother, from getting hurt, and then, perhaps, see his seeing of his brother’s desperation to get the money – at any



cost. Because all action in an improv is a surprise, the continual process of action-observation is required – there is no luxury of time to observe, reflect, and then act; it is a constant dynamic. The same applies to “seeing from the whole”: the actors must be highly attuned to the situation that is unfolding (e.g., when demanding the money, the robbers must notice and adjust to the reactions of the security guard and tellers in the bank). Sensing is an active process, a series of action-observations the actor takes in an ever-evolving dynamic as contextual and relational aspects of the situation evolve. Actors are trained to quickly respond to each new “action,” and then to either build on it or try to alter the course in a new direction – in U-terms, continual rapid prototyping.

HFNs are faced with similar conditions. The situation is never the same – infrastructure damage varies, responders have varying degrees of skill or resources, and so on. Intentions may be clear enough (e.g., to rescue people trapped in a collapsed building), but the actions that each “actor” takes may be confined by the limits of their “seeing,” such as in the case of the NYPD at the World Trade Center disaster. The need to see systemically is nothing new; but, perhaps, improvisation techniques might be used to train people in rapidly seeing from the whole of dynamic situations.

At Nissan, learning to “see” the situation in terms of the evolving business and social context has become critical to our success – whether entering new markets, dealing with changes within markets, or simply responding to a host of other challenges, we require the capacity to rapidly size up and engage in dynamically unfolding situations. Our well-defined, hierarchical structures create only the illusion of stability and control – individuals and whole groups can and do fail to take action in harmony with an unfolding situation, and yet the structure keeps the “machine” chugging, on plan. To respond to the reality of the situation that is emerging, and to adapt in harmony with it, requires courage, a new set of skills, and a new way of being. To develop the capacity to engage in dynamically unfolding situations,

we have focused on the Sensing capacities, drawing from diverse methods including scenario thinking, peer shadowing, and learning journeys. Overall, the goal has been to release innate curiosity, to embrace uncertainty, and to do so in ways that slowly begin to shift our culture from one that values “knowing” to one that prizes deep learning and collective discovery.

**Role and intention (not task):** In exploring the second HFN hypothesis, focusing on the nature of personal transformation that might free new ways of being within the minimal structure of HFNs, intention and will seemed key. In theater improv, intention is also central, providing the basis for all action, the manifestation of one’s role. For example, in most improvs, actors are preassigned a role to play (you play Robber A, I do Robber B, someone else plays the security guard, etc.). Although some role descriptions might include details about the character’s history, world view, or feelings about the situation and others in it, they do *not* prescribe specific actions or duties (like job descriptions or hierarchical roles a company might define). Instead, each actor in the improv must approach the situation based only on a clear intention: what he or she wants, in light of the situation. The word *intention* is actually used in theater, often interchangeably with the word *will*. Intention is the basis of will, as expressed through observable action – action follows from intention, not from a fixed process or role definition. Intention thus defines the role the actor plays by shaping the action he takes within the role.

Augusto Boal, a pioneer in the use of theater improvisation techniques to effect social change, defines *will* as follows: each character has a dominant will, what he or she wants, and counter will, the opposite or obstacle to expression of dominant will. It is the dominant will that defines the “character” (or, in life, the emerging self). For example, Robber B wants to make sure no one gets hurt (dominant will). He also would like to get the money (counter will), but the dominant will prevails, guiding his subsequent actions – he will sacrifice the money and flee in order to avoid hurting someone. Each of us faces internal conflicts posed by counter will; when these are not resolved, action becomes unfocused and ineffective. The challenge is to connect to one’s intention, then focus intention on the basis of the dominant will, and then allow actions to flow from it (as illustrated in the figure on this page). In this way, the “role” one plays can be based on deep personal intention and will, and not a prescribed definition, which may have little or no meaning for the individual. A role that is defined by intention rather than tasks may also be more easily adjusted to a new situation, enabling greater flexibility and freedom for self-organization – action without hierarchical or centralized control, and yet guided by the need to contribute to the unfolding situation in which all “actors” are participating.



Intentions are expressed through actions; actions without a clear intention have no meaning in a theatrical performance, and cannot serve to advance the play. (How many actions performed in work-life seem to have no clear intention?) An actor’s intention, however, is always formed within the context of the whole – of the play or the nature of the situation, and in

relation to the other actors within it. An actor with an intention that does not make sense within the context of the situation would not be able to perform in the improv – he would have no actions to take (or else would have to play a crazy character). So, in HFN terms, the question might be how to first develop clear intentions, focused on dominant will, within the context of the crisis and including all the players in it, in such a way as to enable coordinated action that can adapt to changing conditions.

*Representative approaches:* Actors approach a play or improv by exploring first the situation, and then the character's intention within it: What does he want? Why? What is he trying to make happen? What are the obstacles within himself (counter will)? Even when the actor is working with the text of a scripted play, dialogue and stage directions are approached not to understand task or prescribed action, but intention – the *why*. (Imagine a planning meeting that operated on the same principles.) To understand intention, the actor explores the overall role (type or function of the character), the dynamics of the situation, his world view versus those of others, and what he would like to “create” by influencing others or events so as to alter the course of the situation. Any one role has an overarching intention (dominant will) that is played out via a series of concrete actions, moment to moment. Actions are adjusted and evolved through engagement with the other characters in the play, and in relation to the evolving situation (i.e., through ongoing learning). When intention does change, as it may, the observable actions (or tasks performed) change quite naturally. To connect to the intention of the role, the actor draws from the self. The process of connecting the intentions of the self to the role and the situation involves, in U-terms, Presencing. Because each of us possesses infinite capacities – the capacity to love and also hate, to rescue and also kill – intention becomes the choice that defines the self, who we are, and what actions we will take or not take as a result.

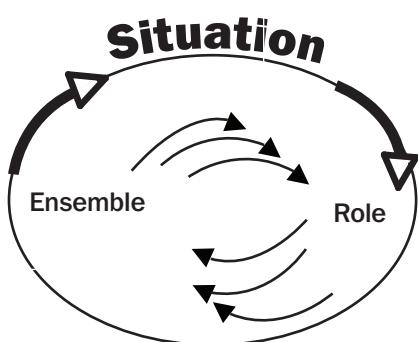
At Nissan, we have focused on developing methods to uncover and focus intention and will among our leaders – those who are making big choices about the business and then acting upon them need both clarity and deep commitment for change. In our leadership development program, we have been successful in helping to create reflective spaces for leaders to take the time to allow for “stillness” that their otherwise hectic schedules deny. These few moments have surfaced many profound discoveries for both individuals and communities of leaders. Intention is, it seems, always present, and needs only the space to emerge; the work has been neither time-consuming nor complex, but rather quite natural. However, it can be hard to hold one’s intention when back in the bustle of everyday work, among the competing or unclear intentions of others. So we continue to support the space needed to maintain and hold intention through executive coaching, and through the network of peers that evolves from the program. In Japan, other groups have embarked on the same mission by instilling the Zen practice of *shi kan*. Loosely translated, *shi* means to stop, take time out, and *kan* means to meditate so as to lose the self, to enter the larger field, and start fresh. What is emerging from the various approaches is the clear desire to surface a larger sense of purpose, and to connect the will to a shared field of change. The energy that arises from these reflective, “presencing” practices is palpable.

**Ensemble (not hierarchy or centralized authority):** In exploring the challenges of HFNs, the question of how to take coordinated action among many disparate groups without a central authority remains key. The challenge here is amplified by sheer scale – whereas a self-managed

team might quite easily self-organize, how can large numbers of responders do so? As a starting point, considering the focal questions at the bottom of our U, it seemed imperative to begin to explore what it takes to move from being solo performers (e.g., NYPD versus firefighters) to being an ensemble, a unified group of responders.

Although most plays and many improv groups are organized by a central authority figure, the director, some improv groups work as an ensemble without a director; they are self-organizing. When a director is used, it is a role defined by function, not hierarchy; a director cannot determine how an actor will act, any more than a manager can dictate how an individual will perform. The difference in theater is that control of the actors is not expected! This is a very different mental model about leadership and working together than many people working in command-and-control organizations experience. To work as a self-organizing ensemble, actors must rely upon common language, methods, and goals (typically defined as *effective engagement in the situation*) in order to perform. What's more, they must rely upon each other, despite their diverse intentions and roles. They are bound together by the need to act within and upon a common situation. In a scripted play (or any other highly

structured situation), it is relatively easy to perform one's own role without "seeing" the others or the whole; one can go through the motions of performing one's own tasks regardless of what is happening around one, and the structure will keep the "machine" moving. In this way, well-defined structures can obscure intention and inhibit connection to the others in the system, and to the system as a whole. The NYPD's failure to think beyond their own solo roles is a tragic example of how hierarchical structures can limit ensemble performance.



Improvisation forces ensemble behavior, because there is no preordained structure and the scene cannot be advanced without collaboration. Although intentions often conflict – indeed, conflict is the basis of drama and comedy – the improvisation requires each member of the ensemble to fully explore the intentions and actions of others, to respond to them, and then to try to effect new responses. *What makes a performance succeed is the commitment to the dynamic interplay of diverse intentions working themselves out in order to alter the situation – it is not direction from on high!*

Is an "ensemble" approach possible within large-scale, multi-stakeholder response? We have acknowledged that in these contexts there is no central, hierarchical authority that can help to coordinate the action of the disparate groups of responders. How, then, can each stakeholder group and the collective group of responders learn to work as an ensemble?

At Nissan, shifting from solo to ensemble performance has become a key imperative – as we expand into new markets and at the same time try to cultivate efficiencies, a much higher degree of cross-functional, cross-regional, and cross-company collaboration is required than many employees have been accustomed to. Although our hierarchical structure eventually connects everybody via the "top," the agility required to navigate the complex territory of globalization necessitates a significant shift: We must go from being leaders of empires to being co-actors in an ensemble. We have, therefore, begun to look for opportunities to create intentional spaces for leaders at all levels of the company to co-create as a community. These spaces include our global leadership development program, special forums, and social networks within Nissan and with other institutions. The networks that have been developed in

these spaces, although still in the early stages, have continued to thrive, a welcome indicator that not only the logic but the desire for ensemble performance is present. However, given the many systemic challenges of shifting from solo to ensemble performance, we continue to look for new approaches.

*Representative approaches:* Actors are trained to develop their individual skills as well as to perform in an ensemble – imagine an MBA program doing such a thing! They begin by learning the language and basic acting techniques (everyone becomes familiar with a “scene,” a “beat” within it, an “action” or “color,” how to explore a role and a play, and so on). They then learn how to work together. The focus is on interaction with the Other, on the results of actions being played out as an expression of each individual’s intention, and on what happens when diverse intentions are enacted so as to effect a common situation. Because intentions are based on the larger context, the ensemble functions as a microcosm of the whole system, the emerging play.

Forming a strong ensemble is a difficult process because there are so many forces at play. (In fact, beginning acting classes often focus first on monologues; more advanced classes focus on scene work, where ensemble efforts are required.) Nevertheless, when actors show up for the first rehearsal of a new production or for a new improv, never having met one another, the common language and methods allow them to instantly engage in coordinated action without direction from a central authority.

Ensemble work does take a high degree of individual skill. Thus, most actors never stop studying plays or performances, and never stop trying to perfect their techniques. Each new production process begins with rehearsal – in effect, with learning. Improvisation is often used to explore a scripted play or roles within it, for the purpose of allowing a true ensemble to emerge through a play: It is the process of learning to “see from the whole” (the redirecting capacity in the U). Plays are always rehearsed, for the purpose of giving space for deep exploration of the role, the others, and the play – before public performance. If theater followed the corporate world, it might mean actors would simply read the script, study memos or reports from the director and possibly other actors, then show up to put on a production! Perhaps there might be value in making the time to develop our skills and comfort in working as a true ensemble.

**Discovery (not plans):** The difference between one who approaches life or work as an artist and one who approaches it as a participant may be: (1) the need to create, and (2) deep curiosity about the self, the world, and the self *in* the world. Curiosity and creation seem to go hand in hand as part of a dynamic discovery process. Given the uncertain, rapidly changing contexts in which HFNs must operate, developing the capacity for discovery (as opposed to reliance on fixed plans) seems a critical factor in improving their effectiveness.

In theater improvisation, there is no plan. Thus, there is only the process of discovery. This discovery process is very much like the journey through the seven capacities of the U – except it occurs in rapid cycles of iteration, during which any or all capacities are needed in each single moment of an improv. This type of performance is reliant on a level of skill that allows for tacit, instinctual, and intensively relational modes of action to occur. It is also dependent

**Mattel begins its accelerated product development process, “Project Platypus,” (12 weeks for product prototype along with a complete business plan and marketing plan) with two weeks of improvisation work to form its cross-functional “ensemble.”**

on the actor's desire to let go of preconceptions and ways of being to let come whatever may emerge. Both skill and comfort with letting go to let come are the result of lots of practice, and of participation in environments in which this level of risk-taking is cherished and supported, and engaged in by all.

The nature of the discovery process in improvisation is also largely based on trial and error – an actor must try to get what he wants or to influence the other actors or the situation by taking many different types of actions. When an action doesn't work, the actor is expected to try another; other members of the ensemble are also expected to try to make the scene

work. Improv actors, rather than perceiving failure when an action doesn't produce the desired result, believe that part of the fun is to keep trying, using all of one's skill to effect change in others or the overall situation. It is especially fun when the other actors rally in sudden inspired coordinated action. *Improvisation is a continual discovery process where everyone is inspired to explore the other and the play, as well as the self that is arising through it – through moment-to-moment action.*

In HFN contexts, while each group might have a plan, there is often no central plan through which to coordinate action among the groups. Thus, the responders must engage in a continual discovery process. How might these skills be developed?

***"Every human activity, from the very simplest – walking, for instance – is an extremely complicated operation, which is possible only because the senses are capable of selection; even though they pick up all sensations, they present them to the consciousness according to a definite hierarchy, and this filtering process is repeated over and over in our daily lives. . . . This process of selection and structuration results in mechanization because when confronted with similar circumstances the senses always select in the same way. . . . For this reason, we must start with 'de-mechanization,' the retuning (or detuning) of the actor [a person who takes action]. . . . He must relearn to perceive emotions and sensations he has lost the habit of recognizing."***

– AUGUSTO BOAL

world view of others), seeing ourselves and the rest of the actors from the others' perspectives (how the other characters view me and each other), and seeing from the whole that is emerging (noticing how the story is unfolding, what forces are shaping it, and where it "wants" to go). Additionally, the actors must be driven to experiment and then reflect on the outcomes through repeated improvisation – it is, in effect, a process of continuous rapid prototyping.

"Seeing" and "hearing," however, are not so easy; our brains naturally go through a filtering process to select what sensory information is needed to complete even the simplest functions, and, over time, this results in patterned behavior that habitually limits our field of reality. Otto Scharmer suggests that *failure to see* may be the biggest obstacle to addressing our challenges. Frank Barrett of the Naval Postgraduate School describes methods used by jazz musicians to intentionally interrupt habit patterns so as to enable innovation.<sup>5</sup> Boal suggests the use of both individual and group exercises that are designed to "de-mechanize" our habitual ways of perceiving, to intentionally disrupt our physical and sensory habits so as to allow the mind and body to open to new ways of seeing and, hence, of being.<sup>6</sup>

These de-mechanization methods and others to develop ensemble skills are being developed within business and multi-stakeholder contexts. At Nissan, we have included the discipline of intentional de-mechanization within our leadership development and ongoing organizational learning practices, for the purpose of continually opening ourselves to new ways of seeing and of being. Some of these methods are focused on de-mechanizing the body; others are intended to open the imagination, through dialogic and immersive learning methods. The result seems to combine a deep questioning of individual and collective mental models, a desire to learn from others inside and outside our own system, and a desire to begin to think together.

**Space (physical, relational, and spiritual):** Some thought leaders suggest that the quality of place is the single most important driver of innovation – physical space, and also the relational and spiritual dimensions of space (referred to by Professor Ikujiro Nonaka as “ba.”<sup>7</sup>) Companies like Mattel (Project Platypus), Toyota (Prius development) and IDEO (design firm and leader in innovation methods) have based their cultures and practices largely on shaping space across these three levels for the purpose of enabling product and process innovation, reduction in cycle time, cross-functional collaboration, and connection with the customer – with amazing results. In exploring the needs of HFNs, Denning describes the need for a “conversation space” that is created through both technology and an enhanced relational field. Developing the capacities among responders to create the relational aspects of the conversation space may, thus, be of some value.

In theater of all types, the “set” is carefully designed so as to inspire certain types of action and interaction. Props are often used to further evoke specific types of action – consider the differences in how you would feel or act after having been given a sword, a martini, or a flower. Even in a physically empty space, “place” is created by the actors, as is an energy, a relational space. When a performance is going very well, this sense of space transcends the boundaries of the stage, encompassing the audience. In rare cases, it can access a much larger collective field. It is the goal of any theatrical performance to reach this highest, spiritual space as one, with the entire community *present*.

*Representative approaches:* Little things make a huge difference. Consider the World Café’s attention to creating a café-like setting; drawing out ideas together using a table covered with paper (versus flip charts); Mattel’s use of a separate, intentionally designed “play” space for its Project Platypus; having a meeting in a circle; “checking in” as a way to start a meeting. (See the *ba* case, IDEO-U, and cases about Mattel’s Project Platypus for some interesting examples.)<sup>8</sup>

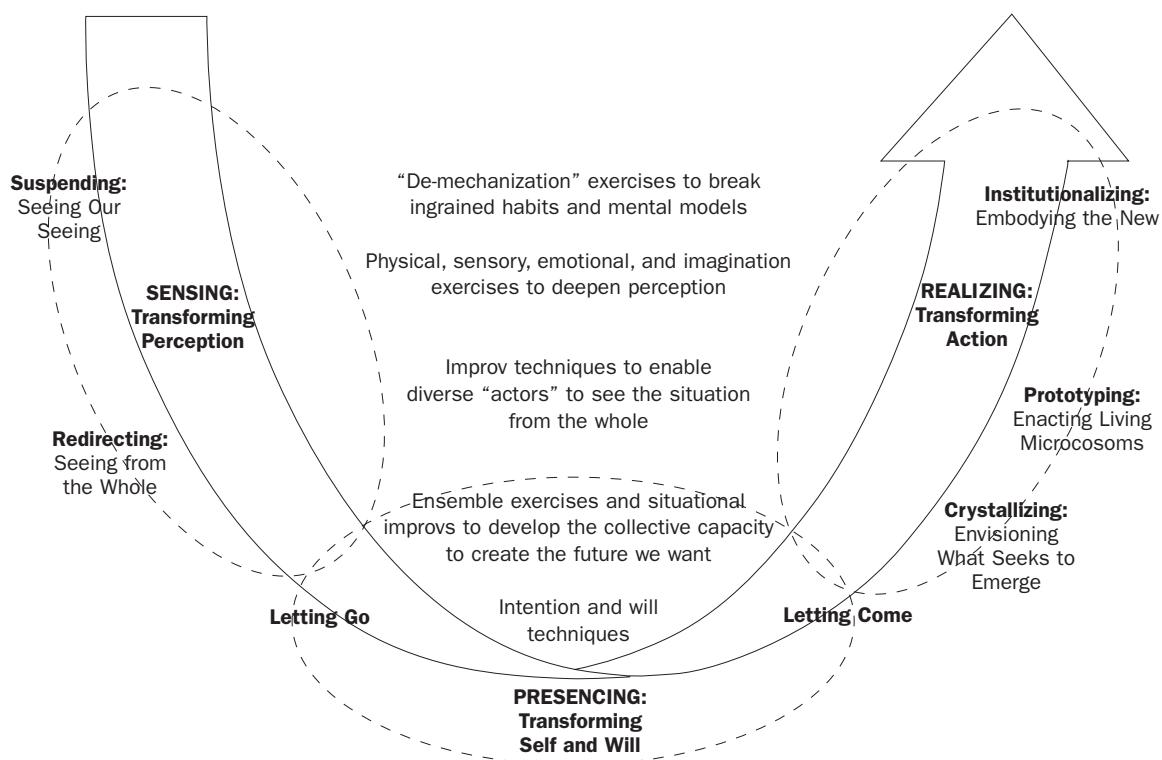
At Nissan, we have introduced *ba* concepts and methods, along with IDEO and Mattel practices, to offer alternatives for how we create the physical, relational, and spiritual dimensions of space, for the purpose of shifting our culture and behaviors in ways that inspire innovation. Some work teams (particularly those from engineering) have taken the ideas further on their own, taking field visits to IDEO, experimenting with their own *ba* practices, and intentionally redesigning the physical places in which they engage.

Additionally, merely having people in positions of authority can set a certain tone in the space that may be counterproductive. Removing the authority aspect can open the field to many leaders, who can share the role in either rotational or differing capacities. Working to create the “right” tone, however, remains a big challenge!

## **Improv Methods and Skills to Explore**

Whereas the HFN challenge implies very large-scale and immediate, short-term response to crises, the thinking is that developing the individual and collective skills used in improvisation might enable better response when the crises occur (i.e., the HFN “actors” will have developed their “instruments”). Additionally, improvisation principles and methods can be applied within many different organizational contexts to (1) create minimal, adaptive structures and (2) enable non-hierarchical leadership.

Based on the principles of improvisational systems described previously, techniques to develop the needed capacities might include:



Specific methods are continually evolving through experimentation at Nissan, for the purpose of better understanding the structural and leadership challenges of HFNs, as well as the overall challenge of creating more adaptive, innovative cultures. We welcome exchanges of ideas and practices.

## Acknowledgments

Many of the ideas in this article were generated over the course of several dialogues with the SoL Liaison Officer Meeting Design Team (for the March 2006 meeting), and as a result of the ongoing work at NPS. Although the specifics in this article do not necessarily reflect the views of anyone other than the author, the following are acknowledged for their ideas and inspiration:

Frank Barrett, Naval Postgraduate School  
Peter Denning, Naval Postgraduate School  
Sue Higgins, Naval Postgraduate School  
Henry Frechette, SoL facilitator  
Jean Tully, SoL facilitator  
Jeff Clanon, SoL staff  
Frank Schneider, SoL staff  
Carol GORElick, SoL researcher  
Otto Scharmer, MIT professor and author

## ABOUT THE AUTHOR

**Tracy Huston** joined Nissan in 2002 to lead the design of its global leadership development program. She continues to support the evolution of the program through experimentation with emergent learning methods and practices, and through executive coaching. Prior to entering the corporate world in 1989, Tracy worked in the theater, where she directed an improv group for the former Boston Shakespeare Company. She is continuing to explore improv methods through L.A. theater groups and the work of Augusto Boal, for the purpose of finding new ways to support systemic and personal transformation in business and social contexts.

**[tracyhuston@comcast.net](mailto:tracyhuston@comcast.net)**

## Endnotes

- 1 For a detailed explanation of HFN, see “Hastily Formed Networks” by Peter J. Denning in this issue of *Reflections*.
- 2 This model and all related content on the U-Theory are adapted from the work of C. Otto Scharmer.
- 3 Adapted from the work of C. Otto Scharmer.
- 4 Adapted from the work of C. Otto Scharmer in *Theory U* (forthcoming).
- 5 See Frank Barrett’s article, “Creativity and Improvisations in Jazz Organizations: Implications for Organizational Learning” in the SoL Library at [www.solonline.org](http://www.solonline.org).
- 6 To learn about Boal’s methods, see his books, *Legislative Theatre*, *Theatre of the Oppressed*, and *Games for Actors and Nonactors*.
- 7 See “Building Ba to Enhance Knowledge Creation and Innovation at Large Firms,” by Ikujiro Nonaka, Ryoko Toyama, and Otto Scharmer, available on [www.dialogonleadership.org](http://www.dialogonleadership.org).
- 8 For information about IDEO, see [www.ideo.com](http://www.ideo.com). A variety of articles and cases have been published on the Web about Mattel’s Project Platypus, and can be found through a search using keywords “Mattel Project Platypus.”

## Commentary

By C. Otto Scharmer



**C. Otto Scharmer**

The article “Enabling Adaptability and Innovation Through Hastily Formed Networks” explores a core issue of leadership today: how to deal with the crisis situations that occur when existing structures and infrastructures break down. This is relevant not only to disaster and disaster relief challenges, but to all types of management issues when knowledge about what worked in the past is not adequate to cope with the situation at hand. The situation becomes even more complex when the crisis or challenge involves multiple stakeholders from different institutions and organizations.

Author Tracy Huston outlines two ways to enhance the performance of HFNs: developing a minimal structure that allows for self-organization, and building new skills at the individual and collective level. The U-process serves as a framework for testing the idea that theatre improvisation techniques can provide some of the skills that help prepare us for crisis situations, and can also teach non-hierarchical leadership processes that are flexible and decentralized.

Most learning approaches are based on the Kolb learning cycle that suggests that reflecting on past experience is the basis for learning. In a crisis, past experience might not help. Decisions need to be made on the spot; action might be based on “gut feeling.” There is no reliable set of data to help guide the action. In working with leadership teams composed of people from many different sectors and industries, I realized that leaders often could not meet their existing challenges by operating only on the basis of past experiences. I wondered whether there could be a deeper learning cycle based on one’s sense of what was emerging, rather than on one’s experience of what had already happened. I began to call this learning from the future as it emerges “presencing.” Presencing is a new term that blends the two words “presence” and “sensing.” It means to sense and bring into the present one’s highest future potential – the future that becomes real through our actions.

The core idea of the U-process and of presencing is to learn from an *emerging future*. The work of an artist can provide an example. There are at least three perspectives on how an artist works. We can

focus on the thing that *results* from the creative process – say a painting; we can focus on the *process* of painting; or we can observe the artist *standing in front of a blank canvas*. In other words, we can look at the work of art after it has been created (the thing), during its creation (the process), or before creation begins (the blank canvas). The same applies to leadership. We can look at a leader’s results. We can look at the processes he or she uses to achieve those results. And we can look at the work from the blank canvas perspective: what sources are leaders operating from? The process of activating this deeper source or level of leading and learning involves three movements: (1) observe, observe, observe: open up and connect to what is going on outside; (2) allow the inner knowing to emerge: open up and connect to what is emerging from within; (3) act in an instant: bring the new into reality as it desires.

The improvisation theatre skills that Houston suggests are a very effective way to hone the practical skills necessary to operate effectively from deeper sources of knowledge in a particular situation. They help individuals or groups learn to activate qualities of paying attention that

- 1) stop the pattern of downloading old mental models (de-mechanization exercises)
- 2) build the skill of observation (physical, sensory, emotional, and imagination exercises)
- 3) allow one’s inner knowing to emerge (theatre techniques to enable diverse actors to “see” the situation from the whole), and to act in an instant (ensemble exercises and situational, intention, and will techniques).

The research on HFNs from the viewpoint of Theory U and improv theatre is a promising field of future research and application. The newly formed Presencing Institute (which operates under the umbrella of SoL) has created an action research group called Social Presencing Theatre in which similar questions are being explored. I recently invited the Boston-based Ariel theatre group into the week-long workshops I run in my current work with a global car company. Their techniques help leaders develop authentic presence and learn new communication skills. The success of these programs is only one of many experiences I

have had over the past few years that support the basic hypothesis which underlies Tracy Houston's article: that learning from the creative practices that real artists use will help us respond effectively to some of the toughest leadership challenges we face. Without intentional cultivation of the deep creative force that is available to all human beings

and systems in all situations, we will be unable to develop the distributed leadership skills we need to deal with some of the most pressing issues and challenges of our time.

**C. Otto Scharmer**

*Scharmer@mit.edu*

# Mental Models That Block Strategic Plan Implementation

Jon Kohl



**Jon Kohl**

Bookshelves around the world are laden with written plans. Having spent a brief time in the limelight, each now rests unimplemented and often forgotten. Despite the celebrations of strategic plans in boardrooms, at press conferences, and throughout grant reports, such plans often end up dead on arrival – even before planners complete the planning process. Curiously, organizations continue to churn out strategic plans and accept their demise without question. The causes of such repeated failures lurk deep in the mental models that program managers, executives, planners, and donors hold about the process and products connected with a given organization. Though the problem can easily be discussed in the context of any organization or institution, this article will illuminate such mental models by looking closely at one example: the park systems.

Parks, whether public or private, large or small, are part of society in countries around the globe. And highly dissimilar parks can suffer remarkably similar problems when it comes to planning. “Planning” ranks among the most common park management functions. Yet something haunts that long hallway between the initial intention to create a plan and the plan’s implementation. The strategic plan can take any form, for example, general management plan, tourism plan, financial plan, or protection plan. Park managers, of course, embark on the planning process wholly expecting the plan’s implementation. No

manager would ever spend tens of thousands of dollars and countless hours on a project only to shelve it and watch it gather dust alongside old, unfunded proposals.

Still, during the very act of setting up the planning process, managers often *unwittingly* set up implementation barriers that scuttle the very project they are laboring to create. In the background of their awareness, systemic elements hum along like quiet machines. Yet instead of building plans, they build barriers. If managers were to stop and cast light on these mental machines – models – then they could retool them to diminish the likelihood that certain barriers would halt a plan’s implementation.

Few studies have documented the extent of plan implementation failure (Burby, 2003; Lachapelle et al., 2003; Lane, 2003). Any park manager, nevertheless, can name handfuls of unimplemented park plans at his or her own park or those managed by others. When I worked in international conservation and park planning in Mesoamerica in the early 2000s, I regularly told people about the series of public use plans in the Dominican Republic that disappeared from public view after being written. In Guatemala, the Cerro San Gil Reserve’s ecotourism plan sat idle. In Mexico, Sian Ka’an and Cerro Grande Manantlan’s public use plans were left unimplemented. In Honduras, La Tigra National Park had both an interpretive plan and a management plan that, like falling stars, glowed bright before fading away. Even the venerable Galapagos National Park had an interpretive and environmental education plan on the shelf.

## Mental Models Erect Barriers to Plan Implementation

Many implementation barriers grow out of park managers' assumptions or mental models. Without training, it is difficult for anyone to cast light on his or her own deep assumptions. When assumptions remain obscured, the holder tends to repeat the same patterns of behavior over and over (see "Story of a Strategic Park Planning Failure"). But once a manager perceives her own mental model, she soon discovers that her assumptions are just that: assumptions, not truths. Once she strips them of truth status, she can much more easily mold the assumptions and replace them with a new interpretation of reality.

When we lower the drawbridge to the traditional park planning mind, we find a variety of assumptions that shape the planning process. We can group them into four general categories: Learning and Consultants, Planning Process, Plan Nature, and Plan Format. This grouping, somewhat arbitrary and overlapping, may aid the reader in setting up his or her own mental model about "mental models that explain park planning implementation barriers."

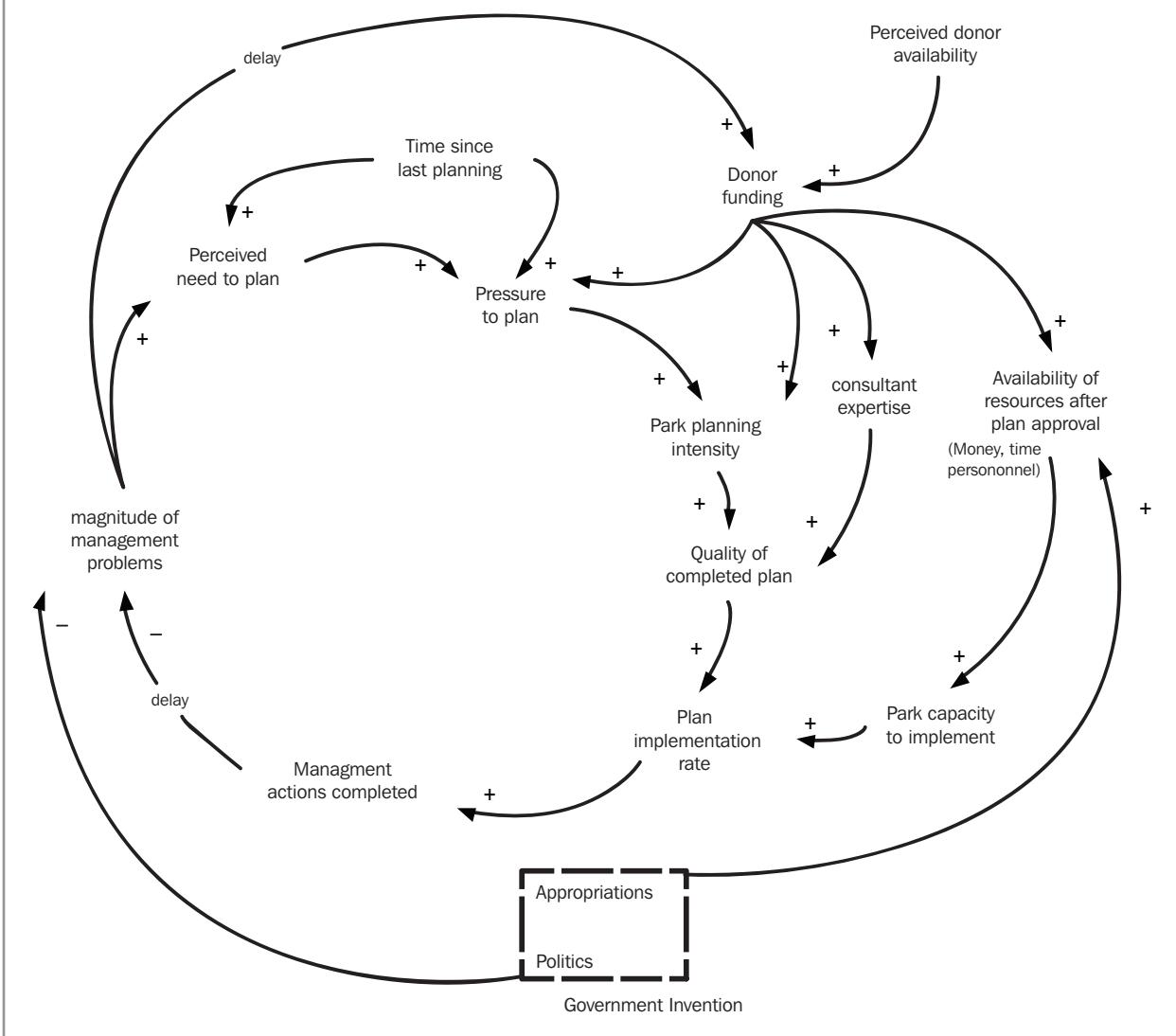
The following causal loop diagram illustrates a generalized traditional park planning model that focuses heavily on management resources and consultant expertise, and not at all on learning. This kind of model does not indicate how strong or influential relationships are, but strength can be inferred by the presence or absence of variables. "Learning," for example, does not appear in this model, not because traditional park managers never think about learning, but because the concept does not play a strong role in their mental model. (The art of effective modeling is to include the fewest elements possible while explaining the system behavior that answers the problem question.) This model answers the following question through the eyes of a traditional park planner: "What is the relationship between strategic park planning and management issues?"

In a systems model, there is no true starting point, but for simplicity, the reader may begin with "Perceived need to plan" at upper left in the diagram. This need increases pressure to plan, which increases the intensity

## Story of a Strategic Park Planning Failure

1. Park and donor retain expensive outside consultant to develop a strategic plan.
2. Consultant runs workshops with stakeholders.
3. Consultant compiles the results and analyzes them.
4. Away from the park office, consultant then produces a nicely bound plan replete with appendices. Usually the plan will not have operational elements such as budgets and chronograms indicating which person will do what when. The "plan" may have recommendations instead of commitments (indicating that it is actually a study, not a plan).
5. Consultant delivers finished plan and departs. Contract is over.
6. There is much fanfare and celebration. The park calls together the media. It passes out published and polished copies of the plan.
7. If the park is lucky, the government approves the plan within the year (depends on country). Quite likely it is approved after the implementation should already have begun.
8. The park then cherry-picks for implementation those actions it probably would have taken even without a plan – those actions the managers truly wanted to do.
9. The park did not learn to use the plan during its development and harbors no intentions of learning how to use it now. Learning has little to do with plan implementation. Managers and planners are different people.
10. Within six months, implementation has been delayed one or more times; the plan is going out of date. Because it is nicely bound, with professional page layout and photos, no one can imagine updating it for years to come.
11. Stakeholder attention shifts to new issues that arise on the radar. Park managers lay the plan on the shelf, only momentarily, until they have a chance to kick-start its implementation.
12. The plan remains on the shelf. The park claims it does not have the money, time, or personnel to implement it.
13. Dust falls. The plan sinks into a pile of documents like just another layer of sedimentary rock.
14. Several years pass. Stakeholder confidence in planning erodes.
15. A new donor comes along and decides the park needs a strategic plan. It dangles money. The park bites.
16. The story begins anew.

Figure 1: Mental Model of a Traditional Park Planner



or scale of the planning effort (once it launches). The greater the effort is, the better the plan's quality. The better the plan, the faster the park should implement it (implementation rate). The faster the implementation, the more actions the park will complete, which will reduce the magnitude of its management problems (biodiversity threats, political wrangles, budgetary shortfalls, etc.). If such problems are mitigated, there will be less perceived need to mount another planning campaign, and donors will likely spend their money in other places where greater urgency looms.

When donors contribute more money anyway, it increases planning intensity (for example, the number of planning workshops and participants rises), improves the quality of consultant the park can hire (quality according to the consultant's CV), and fills coffers necessary to implement the plan. The consultant's expertise has a major impact on the quality of the plan. The park's ability to implement it depends most of all on the money, personnel, and time (all reducible to money) available. Despite the relationship between park and donor, government has a

heavy influence, both through its appropriations for the park and through the politicking and bureaucracy (especially the plan approval process) that cause problems for the park. Of course, for a private park that receives no governmental funding, the managers may substitute *donors* for *government appropriations*.

Just as “learning” does not appear in the model, “barriers” too are reduced above. A manager might point only to a lack of resources. All other barriers are unexpected, assumed not to exist.

This blindness to park barriers plays a major role in implementation failure. Until barriers become visible, a cadre of professionals cannot evolve to help parks deal with them. Thus, in early stages of recognizing barriers, assistance proves rare. This phenomenon happens in many fields. For example, until doctors began to regard mental illness as a treatable disease of the mind, rather than possession by witchcraft, a patient could hope for scant succor. In the case of park planning barriers, one program did evolve to diagnose and treat them. That was the Rare Center for Tropical Conservation’s Public Use Planning Program.

## A Program to Address Obstacles

In 1999, Honduras’s Pico Bonito National Park had money for a public use plan. It asked a partner organization, the Rare Center for Tropical Conservation (hereafter “Rare”), to locate a park planning consultant. After searching Latin America for successful plans and methodologies and discovering precious few of either, Rare offered to develop a planning methodology on the condition that Pico Bonito, not Rare staff, write the plan. Rare’s president issued a mandate to his staff that this program should avoid the implementation problems often encountered in traditional planning. Accomplishing that mandate required that the program identify and classify those barriers.

Six months later, the park publicly presented the prototype public-use plan, written by its own board of directors. It was the first in Honduras and the first in Rare’s history. A year and a half later, with improved methodology, the park and Rare used its updated methodology and developed the second prototype. In 2001, Rare and UNESCO launched the World Heritage Partnership, under whose funding the planning program expanded to other sites in

## E.F. Schumacher on Development in *Small Is Beautiful: Economics as if People Mattered*

“Development does not start with goods; it starts with people and their education, organization, and discipline. Without these three, all resources remain latent, untapped, potential. There are prosperous societies with but the scantiest basis of natural wealth... and we have had plenty of opportunities to observe the primacy of the invisible factors after the war. Every country, no matter how devastated, which had a high level of education, organization, and discipline, produced an ‘economic miracle.’ In fact, these were miracles only for people whose attention is focused on the tip of the iceberg. The tip had been smashed to pieces, but the base, which is education, organization, and discipline, was still there.”

“Here, then, lies the central problem of development. If the primary causes of poverty are deficiencies in these three respects, then the alleviation of poverty depends primarily on the removal of these deficiencies. Here lies the reason why development cannot be an act of creation, why it cannot be ordered, bought, comprehensively planned; why it requires a process of evolution. Education does not ‘jump;’ it is a gradual process of great subtlety. Organization does not ‘jump;’ it must gradually evolve to fit changing circumstances. And much the same goes for discipline. All three must evolve step by step, and the foremost task of development policy must be to speed this evolution . . .” (p. 169)

Mesoamerica and Indonesia. Since that time, Komodo and Ujung Kulon National Parks in Indonesia have completed the first official drafts of their public use plans; the program also contributed the public use section of Guatemala's Tikal National Park Master Plan.

The Public Use Planning Program, as it was now called, soon coupled its search for barriers with the work of renowned economist E.F. Schumacher, who wrote in his book *Small Is Beautiful* that real building of capacity depends on the development of education, organization, and discipline (see box). Rare integrated this observation into its program philosophy, its basis for combating implementation barriers. The entire approach then boiled down to one message that all park managers had to understand: *Strategic park planning will not yield benefits for conservation unless parks learn the skills necessary to create and implement their own strategic plans.*

The implications of this message precipitate a radical new way of conducting park planning. The approach converts unseen barriers into regular challenges faced throughout any strategic planning

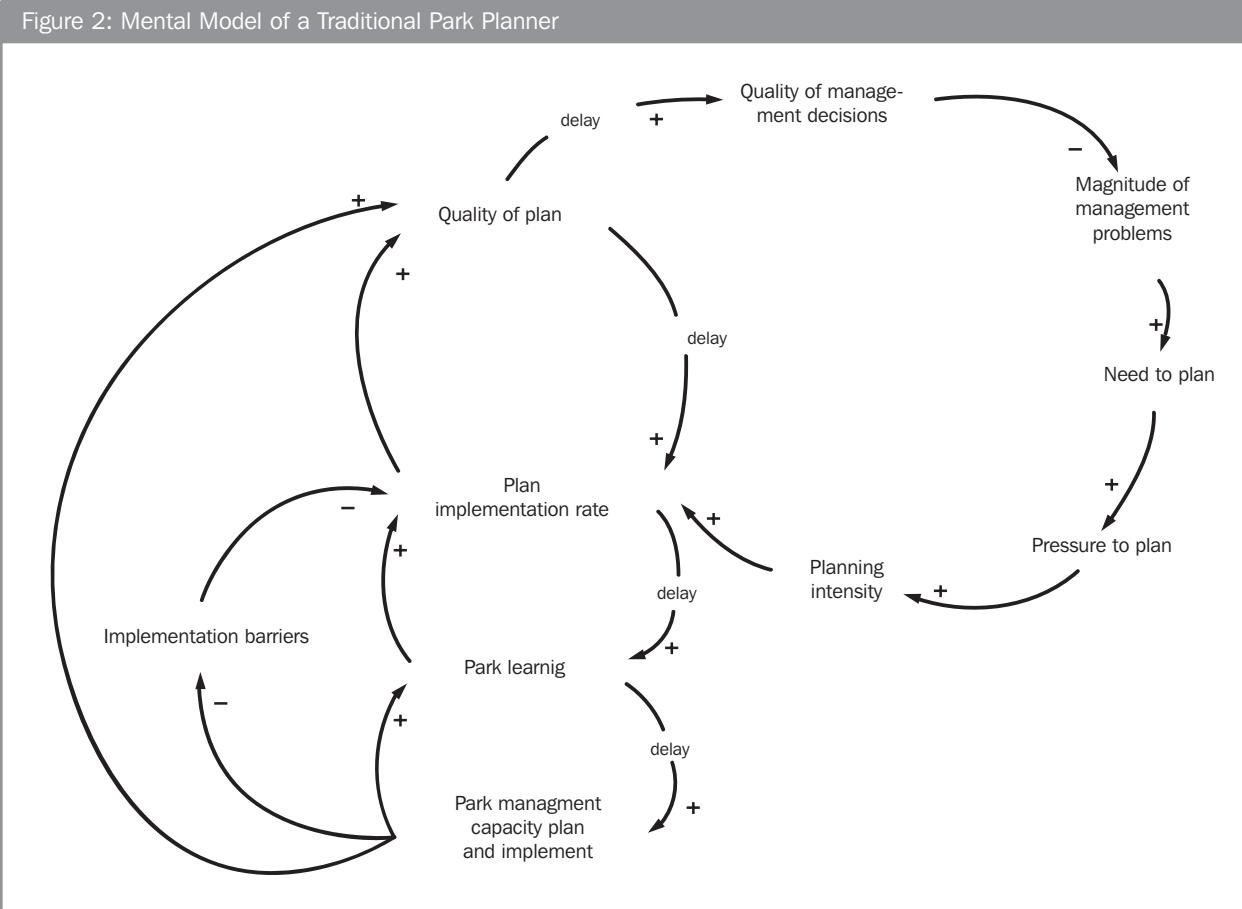
process. It does this by understanding the mental model park managers use to inadvertently erect those barriers. Without any conscious intention of doing so, Rare embarked on a de facto systems thinking approach to circumvent strategic park planning barriers rooted deep in the mind.

## A New Planning Model

In the following loop diagram, managers have made barriers and learning explicit considerations in their mental model of park planning. Begin with “quality of plan” at upper left. As the plan’s quality goes up, the park can implement it faster (better plans are easier to implement). Over time, as the park managers implement more of the plan, they will find more ways to improve it (experimentation, feedback). That is, they will learn faster, which increases implementation. Over time, as the park learns, it will also institutionalize its lessons into park management capacity (operating manuals, culture of organizational learning, personnel capable of learning, people applying planning lessons to other management



Figure 2: Mental Model of a Traditional Park Planner



functions, rules mandating the identification and application of lessons, etc.).

Increased park capacity helps parks to identify previously unknown barriers and avoid them. Additionally, greater capacity leads to higher-quality plans. Presumably, higher-quality plans will lead to higher-quality management decisions, reducing the magnitude of problems, which will then reduce the need and pressure to begin new planning efforts. In this model, managers are continuously planning as part of normal management processes (management and planning are integrated, not separate, functions), so they do not need large new infusions of money and consultants (hence these resources do not appear in the model). Also note the multiple delays in this model, which underscore that building capacity takes a long time and does not happen during the contract duration of a traditional consultant.

Despite the ubiquity with which mental models can lead people, industries, and cultures toward counterproductive behavior, this deep causation often goes unseen, precipitating repeated failures, even though those failures are startlingly obvious to those with different assumptions. This is the case for park planning when managers assume that their next effort will rise to success above the discarded plans that litter the landscape. The following table identifies some of the major assumptions, their consequent implementation barriers, and actions that managers can take to circumvent or mitigate the barrier. Many assumptions derive from the traditional park planning model above; others are unrelated.

Though this was written specifically to address park planning, managers and planning stakeholders from many domains will recognize many of these assumptions and barriers.

Table 1: Assumptions, Barriers, and Responses

Parks Assume...	Planning Barrier	Exemplary Response Strategies
<b>Learning &amp; Consultants</b>		
Given the appropriate resources, parks already have all the management capacity necessary to implement a strategic plan.  Implementation failure comes from a lack of resources and other exogenous factors (not a lack in their own capacity).	<b>Parks do not have the management capacity to create and implement a strategic plan.</b>  The ability to create and implement a strategic plans is not innate. Strategic plans are sophisticated tools that, like any other sophisticated tool, require training and experience to use effectively.	Facilitators should make significant efforts before planning to identify the capacity levels of the park so it does not proceed overconfident and blind to its own limitations.  While many capacities are technical, such as the use of a monitoring system, other higher-level capacities refer to learning, discipline, and organization that are more difficult to articulate. For example, only an organization with discipline can say “no” to an offer of money for developments outside its strategic priorities.
The locus of knowledge should be with the consultants.  Learning is not a component of organizational performance.  Technical assistance of a consultant need only be short term, because parks need no help to implement the plan.	<b>Parks do not learn how to create and implement the strategic plan.</b>  Learning is not an explicit objective of the planning or implementation process.	Facilitators should build learning tools into the process, such as systematic discovery, documentation, and application of lessons learned; periodic evaluations; explicit trainings, etc.  Donors should pay for medium-term (four to six years) technical assistance to help parks learn to use their strategic plans.
The consultant has all the answers and skills.  If something goes wrong, it is the consultant's fault.	<b>Parks task consultants with doing most of the planning work, thus robbing parks of opportunities to learn and create their own management capacity.</b>	Parks should hire facilitators experienced in participation and organizational learning.  The terms of reference for the facilitator should limit facilitation to organizing and running meetings. The bulk of analysis and writing should be carried out by stakeholders (under the facilitator's guidance).
Expert knowledge, even if it originates outside the community, is critical to success.	<b>Outside planning consultants can reduce stakeholder ownership, leading to lower levels of implementation.</b>  A side effect of using traditional planning consultants is that stakeholders do little, if any, of the work. The plan then does not represent their labor and probably not their ideas.	There is a balance between acquiring skilled facilitators and choosing facilitators who have the trust of stakeholders and understand them. Skilled outsiders using participatory methodologies can make stakeholders feel ownership of the document, but the more “outside” facilitators are, the more challenging the task will be.
Experts making recommendations will yield better results than stakeholders making commitments.	<b>Outside consultants make recommendations that are not implemented.</b>  Parks confuse studies and plans. Documents with recommendations are studies. True strategic plans do not make recommendations, they record commitments.	Facilitators need to clarify whether they are facilitating a study or a plan. If it is a plan, then they need to make clear that stakeholders are agreeing to binding commitments, not recommendations.

Table 1: Assumptions, Barriers, and Responses (continued)

Parks Assume...	Planning Barrier	Exemplary Response Strategies
<b>Planning Process</b>		
<p>Expert, scientifically derived knowledge is more important to the planning process than personal experience and values. Thus, expert planners are more important than subjective, quarrelsome, untrained stakeholders.</p> <p>The plan is ultimately both property and responsibility of the park management authority, rather than a collective work of park stakeholders. Park managers must maintain control over the plan in order for it to be properly implemented.</p>	<p><b>Parks do not adequately involve stakeholders in the planning process. As a result, stakeholders impede or actively sabotage the process.</b></p> <p>Burby's 2003 study indicates that the more stakeholders are involved in the planning process, the more likely a state government plan is to be implemented. This assumes true and well-facilitated participation.</p>	<p>Facilitators should have experience in participatory methodologies and stakeholder analysis.</p> <p>Facilitators should explain that having people who share values and work together ultimately increases the chances of implementation and longevity of solutions.</p> <p>Facilitators should forge a shared vision of a plan as a collective work for which the park authority is just one stakeholder.</p>
<p>Parks can and will transform strategies defined in the plan into operations.</p> <p>The time between the completion of a strategic plan and the start of operational planning does not diminish motivation, knowledge, or momentum created by the planning process.</p> <p>Once the vision is clear, implementation comes easily.</p>	<p><b>Parks are unable to transform strategies into operational mechanisms for implementation.</b></p> <p>Strategic plans are often created in a different time and place than the subsequent operational plans (budgets, implementation plans, logistics).</p>	<p>Facilitators should build operational planning into strategic planning, not leave it separated from strategic planning in time and place. Hence, a strategic plan should budget time and money for a three-year or five-year term.</p>
<p>Parks will deal with the approval process when they get to it.</p> <p>Approval processes are immutable.</p>	<p><b>Strategic plans get bogged down in the approval process and then are never implemented.</b></p> <p>Lane (2003) reports that 80 percent of protected-area directors interviewed in Honduras stated that the plan approval process hinders their ability to implement plans.</p>	<p>Facilitators should include, as a pre-planning step, research of the approval process. Parks need to know exactly how it works and how to develop a plan that will move more quickly through the process.</p>
<p>Research is a necessary part of strategic planning.</p> <p>Scientific research yields data of much higher quality than does participatory research based on people's knowledge.</p> <p>Strategic plans must contain databases and inventories even though those who would use the plan already have access to that information.</p>	<p><b>Research during planning takes so long that stakeholders lose interest.</b></p>	<p>If research is unavoidable, the research component should be separated from the planning.</p> <p>Parks should consider using participatory research when possible rather than field research. That is, in a workshop, have participants name tourist attractions (one day) instead of field inventory (days to weeks).</p>

Table 1: Assumptions, Barriers, and Responses (continued)

Parks Assume...	Planning Barrier	Exemplary Response Strategies
<b>Planning Process (continued)</b>		
The standard planning process is sufficient to generate a plan focused on park priority concerns and needs.	<b>Parks do not adequately define planning process goals at the outset, which can lead the plan astray.</b>  This barrier is discussed in Lachapelle et al. (2003).	Facilitators should help parks tailor the planning process to meet their specific needs. This tailoring then becomes formalized in goals for the planning process.
All major issues will arise through an expert-driven process.  No special steps are necessary to deal with park's major conflicts.	<b>Inflexible methodologies increase the chance that the strategic plan does not reveal and deal with the park's major issues.</b>  This barrier is discussed in Lachapelle et al. (2003).	Facilitators should have experience in adapting methodology on the fly to address major issues. Facilitators should also have skill in bringing conflicts out into the open where they can be discussed and resolved.
Planning can occur simultaneously with whatever other urgent issues arise.	<b>Parks can lose attention and commitment as new programs and problems distract them from planning.</b>  Traditionally, the planning field regards park <b>readiness</b> as an ability to concentrate on and invest significant energy in planning. When the park grapples with other major problems, whether budgetary, management-related, or administrative, it is not ready to commit to planning.	Donors should determine a park's readiness before beginning to plan. Planning requires complete attention. If other issues are emerging on a park's radar, it may be best to postpone planning.
<b>Nature of Plan</b>		
Credibility in one area (e.g., longtime park planning advocacy) qualifies a consultant to facilitate a quality strategic planning process.	<b>A plan's poor technical quality derails implementation.</b>	Parks should research and choose a methodology and facilitator that have demonstrated success in strategic planning.
Plans require nothing more than sufficient resources to implement. Resource deficiencies are root causes for non-implementation.  Parks should plan for everything they want in the park, regardless of resource availability.	<b>Parks do not implement the plan, and they blame insufficient resources.</b>  Resources usually refers to money, time, and personnel.	Facilitators should measure the likely resources available and take them into account during planning. If the plan has an operational component (budget, implementation plan), then the park often has a much more reasonable projection of what can be achieved with given resources.  Donor should include funds for implementation, not just planning.

Table 1: Assumptions, Barriers, and Responses (continued)

Parks Assume...	Planning Barrier	Exemplary Response Strategies
<b>Nature of Plan (continued)</b>		
A strategic plan should be updated only when it is redone or when its long-term planning horizon (three, five, or 10 years) expires.	<b>The plan is not updated, and, once out of date, no longer addresses current challenges. Then it is not implemented.</b>  Governments often mandate that a plan can be updated only upon expiration of its formal term.	Facilitators should build in discrete “update moments” during the implementation plan, more frequent in the first year or two than later on.
Strategic plans will solve all major problems.	<b>Parks have high expectations for plans. When their expectations are not met, they lose confidence in the plan. The result is non-implementation.</b>	Facilitators need to emphasize that plans will grow and change as the park learns. Problems will always crop up, and even solved problems often do not stay solved. Planning goals should be realistic and attainable, not pipe dreams.
<b>Format of Plan</b>		
A plan must be large and filled with methodological, cartographical, technical, and inventory information, and appendices and charts, to earn respectability.  Visual communication is less important for the plan’s implementation.  A polished, published, and bound volume can still be a “living document.”	<b>The plan is not user friendly, which discourages staff and stakeholders from participating in the document’s use, leaving only very few people who know and understand its content.</b>	Facilitators need to agree with parks in advance about a format that promotes visual communication and high-quality writing.
<b>Political Context</b>		
A strategic planning process is not the place for conflict resolution.	<b>Power struggles among stakeholders essentially paralyze and scuttle planning or else water it down so much that it no longer can effect change.</b>  Lachapelle et al. (2003) discuss the barrier of power in terms of the organization itself wanting to control the process.	One of the best responses to power struggles is to have a forum where both sides speak their position and reach a conclusion. This should involve the facilitator.  Facilitators should also identify conflicts very early on through interviews or any site assessment that might accompany the process.
The park authority is responsible for implementing the plan.	<b>When governments change, existing plans can be tossed. Sometimes the planners (and their bosses) are also tossed. When personnel leave, so does institutional memory.</b>  Lane (2003) reports that 87 percent of interviewed protected-area directors in Honduras stated that government changes hinder their ability to implement plans.	If nothing else can be said about government change, its timing and consequences are predictable.  Donor and park should not start a planning process within a couple of years of an expected change of park director or key staff.

Table 1: Assumptions, Barriers, and Responses (continued)

Parks Assume...	Planning Barrier	Exemplary Response Strategies
<b>Physical Barriers</b>		
"It can't happen to us."	<b>Plans can be physically lost because of computer crashes, office fires, theft, or negligence.</b>	Facilitators should back up plans both on and off site.
"It can't happen to us."	<b>Disasters, either political or natural, can interfere or stop the planning or implementation process. These could include earthquakes, volcanic eruptions, rebellions, violence, employee strikes, severe budget cuts, or the death of the park director.</b>	Parks should not begin planning when facing imminent disaster.

## A Question of Assumptions

That there are so many assumptions (and the above table is by no means exhaustive) prompts the question “Why so many?” *Coincidence* as an explanation would be shortsighted. An alternative explanation is that these assumptions rest on still deeper assumptions in the system – commonly rooted ways of viewing the world. In fact, we can trace the above planning assumptions back hundreds of years. Consider the lineage of assumptions tying today’s planning to several fundamental assumptions originating 300 to 400 years ago.

In the 17th century, Sir Isaac Newton described the interaction of objects in a manner that still underpins modern perceptions of reality. He said that the interaction of any two objects could be described through motion. If one knows an object’s material, velocity, and angle of approach, one can predict how it will interact with other objects. From this perspective, the world and its problems are as stable, linear, and predictable as two billiard balls caroming into each other. Earlier in the same century, Rene Descartes had argued that if one breaks any object or problem down into constituent parts and studies those parts, one can understand the whole. In essence, Descartes implied that even highly complex problems can be understood through reductionism. Together, these thinkers built a mental model that

assumes the world to be stable, linear, predictable, and understandable.

Thus, if problems can be studied and understood, then solutions are limited only by resources, whether time, personnel, or money (all reducible to money anyway) – not by any inherent difficulties in understanding the world or by the need to learn.

And if the only significant limitation is resources, then planning is basically a bureaucratic requirement necessary to obtain resources. Meanwhile, time needed for planning competes with time needed by directors to actually manage and solve problems. The outcome is that planning and managing have become two entirely distinct processes within park administrations. Managers tend to delegate planning to lower-level staff and outside consultants, participating only when necessary, and preserving time for really critical matters in the park.

Into the chasm between thinking (planning) and doing (managing), plans have fallen, partially or entirely unimplemented. This emphasis on resources over learning, doing over thinking, has resulted in a wide variety of interrelated barriers. For example, managers place great importance on the form and format of the plan necessary for winning approval and money, rather than its usefulness. They outsource planning and rely on expertise both to save time and, again, to impress prospective donors. They do not concern themselves with mechanisms that

link strategies to tactical implementation; thus, plans are left behind when managers go to the field. Many other assumptions and barriers can similarly be tied to these common roots descending all the way back to the Enlightenment.

## An Assumption to Metamorphose the Planning Process

What alternative paradigm might there be to this reductionist foundation of planning? Modern systems thinking sees the world not as a group of separate parts related in linear cause-and-effect chains, but as a complex system with multiple feedbacks and delays. This world is complex, ever-changing, unpredictable, impossible to fully understand, and messy. But it follows the “rules” of systems dynamics.

To survive in such a world, organizations must continually learn to keep up with the changing context and to find high-leverage solutions to dynamic, complex problems. Seen this way, planning becomes an integral part of changing the world or tackling problems that challenge park managers.

In a holistic world, because learning is integral to solving problems, managers would not separate planning and managing. They would adopt adaptive management, an approach originally designed to manage complex ecosystems, whereby practitioners *plan, do, receive feedback, and improve their approach* in continuous iteration. There would be no need for one-time major planning campaigns run by outsiders that produce polished and published

plans. Park staffs would create true “living documents” that they would update every quarter or so in accordance with changing conditions, goals, and context. As they tried one approach and learned, they would document their learning in writing and adjust their strategies. The notion of a one-document plan, immutable in time and space, would yield to dispersed learning and documentation, always changing and always guiding management action.

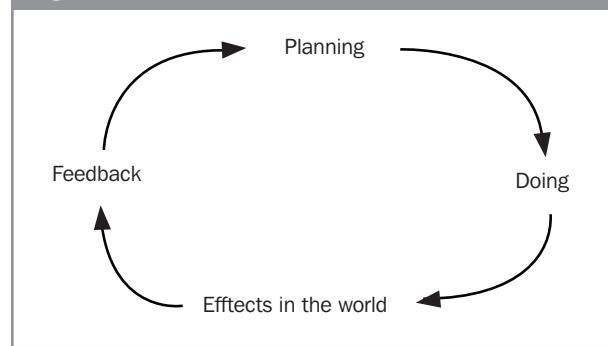
## Planning as Integral to Continuous Learning

Managers, donors, and even consultants can all work together to change mental models of planning. Doing so, however, requires a new holistic mental model that places planning firmly at the center of learning and capacity building, rather than on the periphery. In *The Fifth Discipline*, Peter Senge offers five core disciplines necessary for effective change:

1. **Personal mastery** includes integrating reason and intuition, continually seeing more of our connectedness to the world, compassion, and commitment to the whole.
2. **Managing mental models** involves identifying, clarifying, and changing one’s mental model and its component assumptions.
3. **Building a shared vision** motivates participants toward a common future.
4. **Team learning** consists of three essential criteria: the need to think insightfully about complex issues; the need for innovative, coordinated action; having roles for team members on other teams.
5. **Systems thinking** allows managers to understand reality enough to create strategies to reach their shared visions.

Thus, the most important capacity a park can develop is learning. Through learning, it can examine and modify its mental models, test hypotheses, and continuously adapt and improve. Once the mind closes, assumptions grow hard and immobile, and a changing context will pass them by. Unfortunately,

Figure 3: Mental Model of a Traditional Park Planner



those park managers who already “know” how to solve their problems – if only they could command greater resources – are unlikely to ever read this article.

You can give a park a strategic plan and the managers will shine for a day (when the media show up), or you can help managers learn how to learn, and their park will shine for life.

This conclusion refers specifically to park planning; however, it echoes throughout the world of planning where plan promoters assume the world to

be stable, linear, predictable, and understandable and where system structures reward the creation of plans as artwork rather than management tools. These structures – whether in parks or in corporations – won’t change until light shines down on the mental models that imbue those structures with power. Once the assumptions are illuminated and seen for what they are and what they do, a new age of planning can rise from the stacks of unimplemented plans.

#### ABOUT THE AUTHOR

**Jon Kohl** worked with Rare for nearly seven years developing park manager and interpretive guide capacity-building programs. He left to become an independent consultant and freelance writer, spending time with Fermata, Inc., a sustainable tourism planning company in the U.S. and collaborating with Unesco’s World Heritage Center to develop the systems thinking approach initially explored at Rare. Kohl presented a version of this article at a World Heritage Center-sponsored seminar in Spain on tourism planning for World Heritage archaeological sites in February 2006. More information on his work and writings can be found at [www.jonkohl.com](http://www.jonkohl.com).

#### References

- Burby, R.J. (2003). Making Plans that Matter: Citizen Involvement and Government Action. *APA Journal* 69(1), 33–49.
- Kohl, J. (2002). Park Planning for Life. *Legacy* 13(2), 32–42.
- Lachapelle, P.R., McCool, S.F., & Patterson, M.E. (2003). Barriers to Effective Natural Resource Planning in a “Messy” World. *Society and Natural Resources* 16, 473–490.
- Lane, E.A. (2003). Obstacles to Implementing Strategic Plans: A Study of Honduran Protected Areas. Master’s Thesis. Duke University. USA.
- Margoluis, R., & Salafsky, N. (1998). *Measures of Success: Designing, Managing, and Monitoring Conservation and Development Projects*. Washington, D.C.: Island Press.
- Schumacher, E.F. (1973). *Small Is Beautiful: Economics as if People Mattered*. New York: Harper & Row.
- Senge, P.M. (1990). *The Fifth Discipline: The Art and Practice of the Learning Organization*. New York: Currency Doubleday.

# Engaging the Future



Bryan Smith

In this excerpt from the new SoL resource, *Learning for Sustainability*, he lays out three steps for engaging key decision makers in strategic conversations about the future.

**I**magine you are the CFO of a major U.S. electric utility that is rapidly expanding into a global company, with important investments in developing countries. You are attending an executive team meeting early Monday morning. During a relatively routine discussion on an agenda item about next year's capital budget for the company's coal-, oil-, and gas-fired generating facilities, this heated skirmish occurs:

**Ted (VP, Environmental Health and Safety):** Global oil and gas production is going to peak and begin to decline within the next five years. This will cause major disruptions in supply and rapidly escalating prices for oil, gas, coal, uranium, and all other conventional fuels. To prepare for this, we need to swing at least 30 percent of our future capital allocations to renewables beginning next year.

Bryan Smith, a seasoned consultant and coauthor of all three Fifth Discipline Fieldbooks, is a leader in innovation and learning organization practices. In

**Joanne (VP, Operations):** Breakthroughs in technologies for oil and gas exploration will lead to discovery of huge new reserves. Oil and gas prices will definitely stabilize or decline and we . . .

**Stan (VP, Public Affairs)** (interrupting Joanne): But even with ample supplies of coal, oil, and gas, we may still get clobbered by carbon taxes in many of our markets. Public pressure for action on climate change is growing exponentially around the world. And pollution from coal-fired power plants in China is causing riots and widespread social unrest. As these incidents and harsh government actions to crush them get wide publicity globally, it will trigger similar unrest and challenges elsewhere.

**Robert (CEO):** I don't believe the science on climate change is strong enough for us to change our strategy. This is a temporary issue that will fade quickly when it dawns on people that it will cost them their jobs. I have seen issues like this come and go many times in my career here. And I agree with Joanne – there is no way we are going to run out of oil and gas in our lifetimes. It is a waste of time to worry about that.

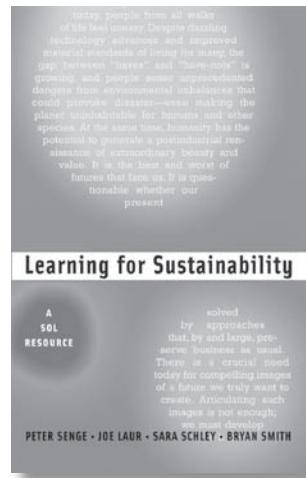
**Anthony (VP, Strategy):** Robert, you have every right to your opinions about climate change and oil and gas reserves, but what are the implications for the future of our company if you are wrong on both issues?

As you listen to this conversation in your role as CFO, you con-

## Learning for Sustainability

Peter Senge, Joe Laur, Sara Schley, Bryan Smith  
SoL, 2006

clude that Anthony's question to the CEO is the most crucial portion of this exchange. You had the same gnawing question in the back of your mind before Anthony spoke. But the next question on your mind



## Learning for Sustainability

A SOL RESOURCE  
PETER SENGE • JOE LAUR • SARA SCHLEY • BRYAN SMITH

is "How can I intervene effectively here so that our whole team can surface and address this uneasiness that many of us feel? I know that several other members of the team have voiced similar fears outside our meetings, but there is no forum to raise them together."

Rest assured that there are good answers to that question, but your first step is to stand in the shoes of Robert as CEO and understand his point of view, assumptions, and mental models. Robert instinctively feels fully justified in forcefully advocating that he has the best plan. After all, he has had an exemplary 30-year career with the company, and, during the last 10 years as CEO, has led one of the most

successful periods in the 80-year history of the company – primarily by maintaining a steady course when others overreacted. He has been successful in the past by insisting that the company focus on one best prediction of the future and ignore the noise of other variables and forces that distract people from driving the business forward for growth.

Robert's predictions over time, including his views today, are consistent with his personal beliefs and mental models, and represent a continuation of the past 20 years or more of his experience in key leadership roles in the company, focused primarily on the U.S. market. His world view is made up of variables with which he is familiar and comfortable. He has high confidence in his ability to control his company's future the way he has controlled the company up to now. But is that confidence well founded?

On the surface, his views are convincing and seem to represent the lowest-risk strategy, but a wider view of emerging global forces suggests Robert's strategy may carry higher risk than he realizes. And that risk emanates from the way he and some of his executive team think about the future. Their way of employing their historic mental models to provide a feeling of comfort and confidence about the future is typical. But it may be masking deeper uncertainties that need to be brought to the surface, whether they are uncomfortable to consider or not.

### **The Risks of Predictions**

Since the shock of the energy crisis in the early 1970s, the risks and opportunity costs of building any company's strategies around a single

preferred picture of the future have been quietly but steadily increasing. And between 1970 and 1990, Royal Dutch/Shell moved from the bottom of the pack of global oil companies (known then as the Seven Sisters) to near the top.

This success is often credited to the resilient strategies provoked by the multiple future scenarios Royal Dutch/Shell executives created, including some that seemed very unlikely to occur, like the first energy crisis. But the real key to their success was in how the executive teams in Shell operating companies around the world actively used these seemingly improbable stories about the future to challenge their mental models and drive the creation of options. For example, many executives from other oil companies knew that the energy crisis could happen, but tended to discount that possibility in relation to their preferred prediction – relatively stable oil prices, in keeping with past trends.

Only Shell's executives spent a significant amount of time thinking through their strategies in light of the possibility of such a crisis occurring. Even though it wasn't certain, it triggered their creativity; they pioneered the use of flexible refining processes that could handle any type of crude oil available, they developed trading practices that allowed them to allocate oil supplies where they would be most needed, and for many years they decentralized management control so that regional managers could adapt to differing country responses to supply shortfalls and price instability. These practices would probably have served Shell well even if the oil supply crisis hadn't taken place; they turned out to be crucial forms of leverage when the crisis did occur.

Now fast-forward to 2001. Prior to September 11, few people suspected that successful terrorist attacks on the United States, using airplanes to destroy key buildings, were even possible, let alone likely. Yet in a scenario called "Fortress World" (one of a set of three scenarios developed in 1995–96 and published in the book *Which World* by Allen Hammond in 1998), shocking events like the terrorist attacks of September 11 were portrayed as a highly plausible outcome of widening gaps between haves and have-nots, and of hordes of desperate, unemployed young people joining a rapidly rising number of idealistic and nihilistic terrorist organizations. Leaders in charge of counter-intelligence efforts proposed strategies and tactics to counter those organizations, but they didn't gain enough of a voice to be influential. They might have been far more persuasive if they had been able to actively explore these scenarios and their implications with key decision makers, instead of simply advocating their point of view.

Like preparation for terrorist attacks before 2001, sustainability is rarely incorporated into the heart of most companies' business strategies. Why does this integration occur so rarely? Clues can be found in the executive team conversation above. Both Ted (VP, Environmental Health & Safety?) and Stan (VP, Public Affairs) set the course of the conversation by advocating for a specific sustainability issue (peak oil production), and attempted to convince the others to place a big financial bet based on that one prediction, taking immediate action.

Joanne and Robert had very different predictions about the future, defined sustainability issues as non-strategic, and used their predictions

to justify staying on a course similar to the one that had been successful over the last 10 years. Neither side inquired into why the others saw the future differently. The CEO had the last say, declaring that further discussion would be a waste of time.

The conversation above is a composite of many such conversations I have observed over time. I have heard all the specific arguments made by individuals in this conversation many times. Just like the impasse they reached, the statements they made are real, not imaginary.

### **Strong Advocacy Usually Backfires**

Here is the pattern that I see at the heart of most of these discussions. People who believe strongly in sustainability issues often unleash their energy in direct attempts to convince others of their views. They predict a very negative future ahead unless there is a significant change in course. They then forcefully advocate one or more “big bets” based on their personal prediction. These might be large investments in new technologies, production facilities, materials or processes that would leave a smaller environmental footprint, or “green” marketing campaigns that might lead the market or force a commitment from the rest of the enterprise or industry. Their intent is to provoke immediate and large-scale change.

But such sustainability champions generally get the opposite results. The executive team discounts their prediction, resists any significant change, and often takes no action at all, not even placing a “small bet” to learn more about the issue together or start a small pilot venture. Even worse, the advocates miss an important opportunity to

enroll the entire leadership team in a conversation about the broader future of the company. Such a conversation could lead to a fresh start, a chance to engage the whole organization with high collective ownership and commitment.

Engaging key decision makers in a more productive conversation requires a clear strategy for engagement. Having passion about big issues is not enough. Being “right” can backfire. I find that the most consistent point of energized connection for line business leaders is the commercial viability and economic sustainability of the firm. That is where they have a stake. If you attempt to engage them in a more isolated conversation about the environment or social responsibility, they will tend to see that as a very narrow, perhaps trivial slice of the future – one that is only marginally relevant to the core of the business and its viability. Their past mental models – that these issues should be delegated to specialists to “take care of them and keep them out of our hair so we can get on with business” – reinforce this perception.

A second key criterion for an effective engagement strategy: It must improve the quality and capacity of the team’s thinking about the future, and the quality of relationships and interactions between the participants as they think together. This is not a one-shot conversation, and any effective step forward in engagement will lead to others. Building the team’s capacity to keep digging deeper is paramount. One-time “victories” for sustainability advocates that leave bitterness and polarization are a classic example of winning the battle but losing the war.

### **Step One: Seeing past the big bets – An initial conversation**

What can you do to make an engagement successful? People like you in your role as CFO (or VP of IT, R&D, or other roles that are one step removed from the heat of the conflict between advocates) can play a crucial role in helping the senior team step back from promoting their specific predictions about narrow slices of the future, and engage in a much wider conversation about a full set of futures that could have a large impact on the company. In doing this, you will be making an essential contribution to the team by creating a new forum within which a truly generative inquiry can occur about unknowns in the future, with all members of the team fully engaged and contributing valuable new insights from their unique vantage points.

If you are in the role of the VP of strategy, you are in an ideal position to propose that such a dialogue occur as part of the planning cycle. You can set aside time for meetings that focus on the future, including time horizons from one to at least five years out, and can likely get support for a one-time excursion farther out into the future – ideally, 15 to 25 years. You can suggest that this time horizon at least match the replacement cycle for your capital assets.

It is usually not difficult to set aside some quality time for thinking about the future if you position the benefits clearly. If necessary, enlist support for allocating this agenda time from members of the team who are not directly involved in heated advocacy. You can also ask them to help you ensure that the conversations are broad enough to

be relevant to all members and to the entire scope of the business, not just slices of it, like environment and social responsibility. These issues will be seen by many members as narrow stovepipes that should be handled by the functional VPs responsible for those areas. Fine-tuning an implementation plan involving how to position public announcements to appease your strongest critics in the environmental and social justice movements, for example, may end up being the responsibility of the VP of EHS. Unfortunately, the hand-off usually happens at the end of the decision pipeline, after the important business decisions have been made.

I will outline here a relatively simple first step that involves four basic questions for leadership teams, which can combat the myopia of their single-forecast approach to the future. I will later recommend the use of a broader, more robust process based on developing a full set of driving forces and scenarios. But here is a simple team process that can definitely help as an initial step, and can build commitment to going further with scenario work.

This approach works best if the team engages an unbiased, credible person to run the meeting. This could be the VP of strategy or a different member of the strategy team, another member of the senior team who is a good facilitator and will ensure full participation by everyone, or even a respected board member from another company.

The first question is "What are our assumptions?" and the first goal of the meeting is to unearth all the assumptions underlying your strategies for the future. Here are some assumptions of the electric utility: Ample long-term (20-year) supplies of coal, oil, and gas will continue to be available at prices similar to

today's. Climate change concerns and associated taxes or penalties for CO<sub>2</sub> production will not materialize over the next 10 to 20 years.

An airline company's strategy might be based on the assumption that carbon taxes will not materialize. In addition, company executives might assume that in the unlikely event that such taxes are implemented, airlines will continue to fly freely above any national or international agreements and be exempt. (It's worth noting that Richard Branson of Virgin Atlantic Airlines seems to be hedging against a different assumption, and is actively exploring investments in large-scale ethanol production from crop and forestry waste.)

Once all assumptions and mental models about the future have been posted where everyone in the meeting can see them, the first question has been answered. The second question is "How do our current strategies serve us if these assumptions change?" The third question is "What options could we create and invest in over time that would improve the robustness of our overall portfolio of strategies in the event that these assumptions change?" I find that participants naturally gravitate to these or similar questions, as the prior exploration of assumptions generates a lot of tension that they want to resolve through further work together. Once your team sees how their current strategies are affected by changes in some of the key assumptions on which they are based, they will want to examine how significant those impacts are, and in what areas.

That exploration, in turn, creates energy for tackling the final question, "What should we be doing now so that we are more prepared if these assumptions change?" Direct

the team's attention to generating options (often small bets focused on becoming more knowledgeable about particular areas of vulnerability and the surrounding territory). Emphasize a more open, creative process here, going for quantity of ideas first, then narrowing them down to a set of options that each have an owner or sponsor from the senior team. These sponsors take ownership for fleshing out the actions needed to develop each option and monitor changing external business conditions relevant to that option.

## ***Step Two: Identifying driving forces***

A valuable second step to take that will build on the momentum of the initial process above is to ask "What are the deeper forces that are driving the assumptions we identified?" From the conversation on surfacing assumptions, you will have already begun to identify some of these. For example, in considering the forces that might drive international climate change agreements and carbon taxes, you may have identified three separate forces that need to be understood and monitored over time, both separately and together:

1) scientific opinion and objective current data about global warming, including subtle measures like small changes in ocean temperature

2) physical changes in climate, weather, and storms that citizens can see and experience directly

3) public attitudes toward and perceptions of climate change: You may have already noted that the public has a mixture of concerns about local air pollution; concerns about regional accumulation of toxins like PCBs and mercury in air, water, and soil; and global concerns about greenhouse gases. (Most citizens don't know the scientific dis-

tinctions between these factors. Survey research shows that people see them as a single cluster of effects that are all bad for the health of their children.)

In looking at the assumptions you might have made about the impact of China on markets and pricing for oil, gas, metals, and other commodities, you may have identified the driving force of the race for economic growth in China, the desire of the Chinese to establish their dominance and make the country the global center of manufacturing, with all the accompanying implications for wealth creation in China and global financial dominance (and perhaps political dominance as well). Those driving forces are inescapably intertwined with bottom-up pressures in Chinese society for social change toward democracy.

Once your team has identified a full list of driving forces, you can extend the dialogue into exploring each one more fully and categorizing them with regard to their degree of impact on your business (low versus high impact). For example, breakthroughs in biotechnology that could extend human life might have high impact for a health-care insurer, low impact for a global oil company – but be careful here. Biotech could also have high impact for an oil company through the development of generic enzymes that can digest thousands of tons of waste daily, and create alternative feedstocks or materials for producing plastics and fuels.

Once you have sorted the driving forces into two lists – those with low and high potential impact on your business – sort each of those lists again into two subsets: those for which the outcome is certain and those for which outcomes are uncertain. For example, you can predict

the number of native 25-year-olds living 20 years from now with relative certainty from the number of 5-year-olds today. Predicting net immigration patterns may be more uncertain, driven by global events beyond your country's borders.

For those driving forces that are relatively certain, you can rely more heavily on forecasting and build your plans accordingly. For those that are highly uncertain and also high impact, it is dangerous to have only one set of plans and strategies. It is most crucial, then, to focus in on those driving forces.

For example, here are the two most crucial driving forces identified by a team from an energy company (I will call it Futures Energy) to protect the innocent) with strategic interests in building a broad portfolio of investments in power generation and transportation fuels, and a future strategy to extend into specialty chemicals. The two potential extremes for each of these forces are shown at left and right. (*See Figure 1.*)

Note that the mandate for this team's work was clearly focused on the long-term growth and viability of the business over the next 35 years. It was not focused in any way on the environmental and social di-

mensions of their strategy. Yet the societal issues of cultural inclusiveness and the urgency of environmental challenges surfaced in the course of the discussion as having the highest impact and most uncertain driving forces. If you are a believer in the importance of sustainability considerations, you can have faith that people will find their own connections between their current world and sustainability, if you give them a clear, unbiased process for exploring the future.

A team from a different company in the chemical industry (let's call it Scenario Chemicals) chose the following two driving forces as the most uncertain and highest impact for their business over the next 25 years. Again, the two extremes are displayed for each of the driving forces. (*See Figure 2.*)

Again, future impacts of sustainability considerations (e.g., social and environmental driving forces) came up naturally as crucial factors affecting the core business, and were validated by all participants in an open, consensus-based process.

Both teams derived substantial new insights by considering the impacts that these top two driving forces could have on their business. Futures Energy immediately began

Figure 1

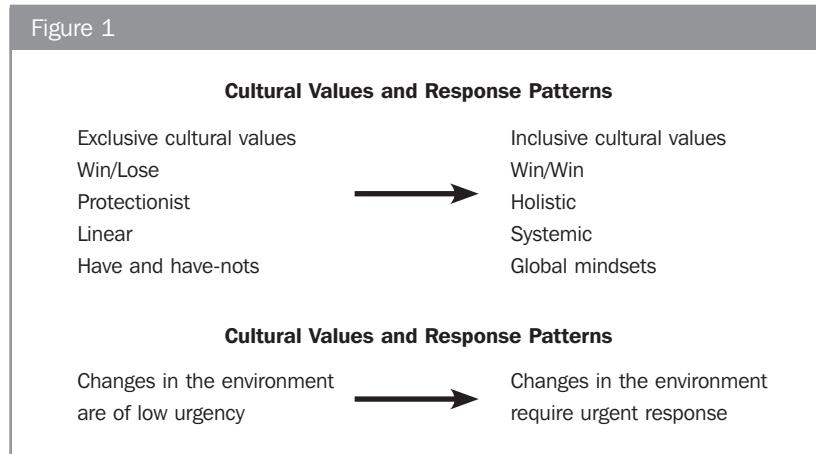
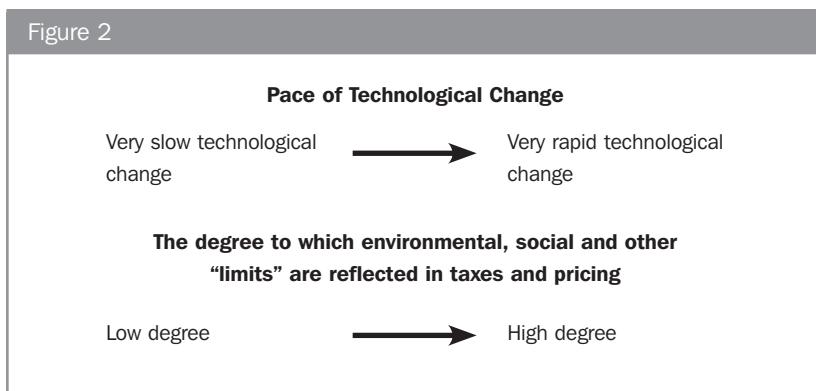


Figure 2



### **Spooked by the post-Katrina gas price spike, the U.S. Congress has suddenly found the religion of conservation.**

A broad and powerful coalition of lawmakers – from environmentalists to fundamentalist Christians – introduced sweeping legislation yesterday that aims to cut U.S. oil consumption in half by 2031 and would require that half of all cars sold be fuel miserly hybrids within a decade.

"There was a mental sea-change that we saw in America when gasoline hit \$3 (U.S.) a gallon," explained Republican Senator Sam Brownback, one of the bill's co-sponsors.

Democratic Senator Joe Lieberman warned that the United States risks becoming a "pitiful giant" unless it curbs its dependence on foreign oil, which accounts for two-thirds of the roughly 20 million gallons a day the country consumes.

"We will become like Gulliver in Lilliput, pegged down and subject to the whims of those smaller nations because we are giving them, by our own consumption patterns, the ropes and helping them tie the knots that keep us down."

The legislation includes tax breaks of up to 35 per cent to get fleet operators to buy hybrid gas-and-electric or alternative fuel vehicles. It would also provide loan guarantees to get auto makers to move from producing gas guzzlers to making lightweight and fuel-efficient autos, as well as new incentives for bio-fuels, such as ethanol and cellulose biomass. . . .

to monitor these forces for early signals on their direction. For example, within six months of company executives' initial work, they began to see signs of systemic thinking appearing in unusual coalitions on U.S. energy policy, at the federal, regional, state, and local levels. Here are a few paragraphs from a bellwether article that surfaced in

their scanning of news media from *The Globe and Mail* newspaper on November, 17, 2005. (See box, above.)

The Futures Energy team also began to sketch systems diagrams to reflect this emerging systemic perspective. One example, using the shifting the burden archetype as the template, follows. (See Figure 3.)

This archetypal pattern represents the tendency of any system to seek balance. It includes a lower loop that represents a fundamental long-term solution – in this case, to increase investments in energy efficiency and new technologies, which, as they mature, reduce demand for energy; create alternative domestic energy sources (such as ethanol, wind, and solar); and achieve balance by reducing dependency on imports of foreign oil. As with all other investments of this kind, these will take time to come to fruition.

The upper loop represents a shorter-term solution, and one that appears easier to implement, at least at the outset. The intent here is to use military measures to secure Middle East sources of oil, so that U.S. imports can rise to balance growing demand. Strategies that attempt to achieve balance through this upper loop often have an addictive effect; as growing energy needs are met in this way, the U.S. becomes more and more dependent on oil from the Middle East. It is this pattern that Senator Lieberman aptly described above. Often, nasty side effects accompany this addictive pattern and make matters worse. Here a vicious circle comes into play – a portion of the cash flows that are directed to the Middle East in payment for oil are channeled to terrorist organizations. In defense, the U.S. has to redirect funds to homeland security measures that could instead have been used to support R&D and new technologies. Side effects like these weaken the ability of the system to pursue fundamental long-term solutions, and increase dependence on short-term fixes.

Monitoring trends and patterns like these can allow you to adjust your strategies much earlier than

your competitors, as you will be attuned to the possibilities of their emerging, and will be proactively looking for them. In addition to monitoring, the next stage to derive value from your work on high-impact driving forces is to use them to “stress test” or “wind tunnel test” your strategies in each of the extremes you have identified. How do your strategies allow you to compete if you imagine you are doing business at the extremes of these variables? If you find you do poorly or are out of business in any of those situations, then create options that allow the company to survive and thrive no matter which way the driving forces play out.

### **Step Three: Creating scenarios**

Once the most crucial and uncertain driving forces have been identi-

fied and explored, a valuable third step is to create scenarios that portray a set of imaginative but plausible stories about the varied ways in which the world might turn out tomorrow. This step allows your team to combine the implications of several driving forces into distinct stories. You are then free to imagine how multiple forces might interact systemically within one possible future, in line with how the real world actually works. We don’t have the luxury in the real world of looking at one variable alone (like technological change) while holding all other variables constant! In creating scenarios, as in real life, it is the surprising systemic interdependencies between events and forces that make life interesting – and highly unpredictable.

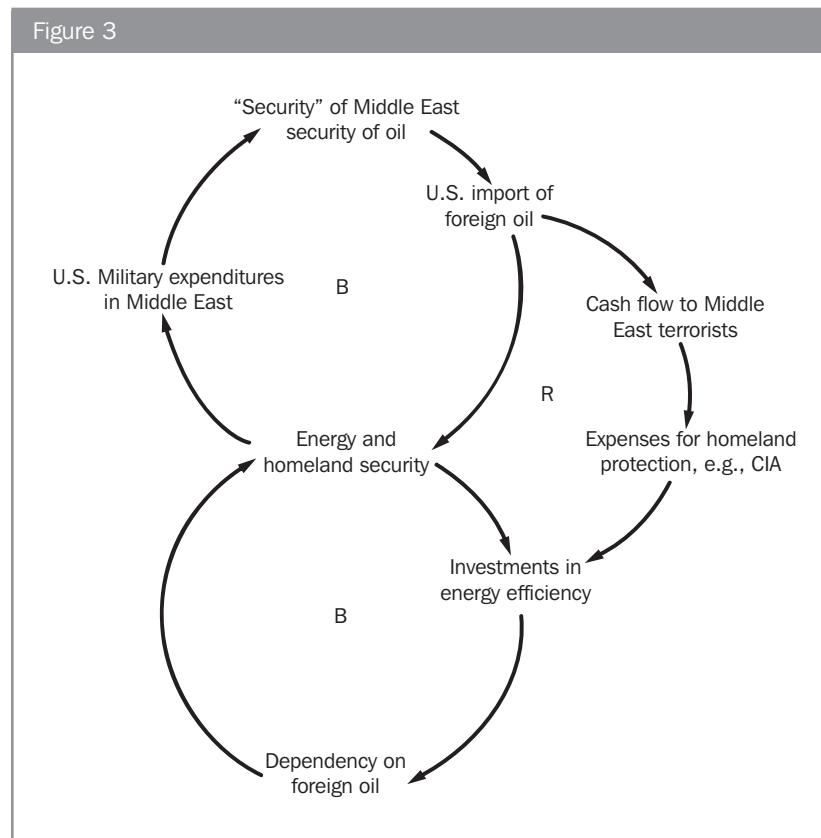
For example, at Futures Energy, the team first explored the two scenarios that emerged when changes

in the environment required urgent responses.

In their view, virtually none of their current strategies were viable in these worlds. When cultural values were holistic and systemic, the team envisioned a world in which “we survive the storm together – barely.” Given the scale, scope, and urgency of responses needed, they saw that it took all hands on deck on spaceship Earth, working systematically, to get through the crisis. At the other end of the scale, when they imagined that prevailing cultural response patterns were win/lose and protectionist, they saw a world of scarcity, conflict, and “subsistence of the fittest.” Basic survival became the goal of citizens. Quality of life in the developed world dropped well below current standards. The team also portrayed the impacts of a flu pandemic (labelled “quarantine world”) that pushed fear and protectionism to an extreme and created a major economic depression due to health-related barriers to trade and travel.

Using these scenarios as provocation, the Futures Energy team recognized that they needed to generate and invest in a much wider range of options than they had been considering until then, including a broad swath of renewable energy technologies and applications. Initially many of these options required the placement of small bets relative to the company’s size. These ranged from \$10,000 to \$100,000 and were primarily focused on accelerating their scanning, learning, and testing of a portfolio of options. Today, as the company learns more, it is ramping up its investments – in some cases to much bigger bets, particularly where early indications are that some of the modeled scenarios are actually materializing.

Figure 3



Scenario Chemicals, similar to Futures Energy, focused initially on a future in which social, environmental, and other limits would drive high taxes and high materials prices at every step of their value chain. When this was coupled with rapid technological change, they saw themselves in a very leaky, flimsy boat in a “continuous whitewater world.” They concluded that they had very weak capabilities to respond to this world. They saw that they would be taken out by innovative new competitors with a much cheaper replacement product that had the same or better functionality and a radically reduced environmental footprint.

Conversely, with the pace of technology change being slow, they could foresee a world they called “the big squeeze” where they would be driven into a loss position with no technological innovations to allow them to break free.

The team aligned quickly on the need to create and actively invest in three separate innovation options that would allow them to prosper in these scenarios. They moved forward immediately on these three options:

1. Ramping up staffing and budgets in R&D, focusing on creating new innovative products before nimble competitors, and agreeing to propose acquiring one of those small competitors if they deemed that it was the most cost-effective way to make progress.

2. Charging a high-profile team with creating a breakthrough in their manufacturing process that would cut capital and energy costs in half, and cut their footprint by more than half for any new plants to be built anywhere in the world.

3. Focusing a team on improving the capacity and productivity of their existing plants.

The first two teams are developing plans that will likely require a significant step up in the scope of the option they are working on – that is, they are developing proposals to move from a smaller bet to a much bigger bet as they further define the Stage Two investments needed and the size of the prize. They have maintained excellent top management interest and sponsorship for their efforts.

### **A Few Final Tips**

As your team begins work on any of the steps outlined above, be sure to forewarn them that emotional tensions may run high as they explore the future, and prepare for this. Emotional reactions (like fear, anxiety, denial, and anger) are virtually unavoidable when you are exploring plausible stories about the future that include negative events. Your goal in the process is to step into those futures as if you are living there. If you do this wholeheartedly, you will almost certainly find yourself thinking about how you and your loved ones will fare in those worlds. The short answer in some futures will be “not well.”

I notice that many leaders who participate in scenario planning end up developing their own family strategies and options for coping in difficult worlds. These might include becoming more involved in their local community to help make it more resilient, changing their personal investment strategies, or buying a remote cabin on a lake with a 100-acre woodlot and a wood-burning stove. So when emotional tensions run high, find a way to

make them discussable so they can be honestly acknowledged as legitimate. Use those feelings to build candor, empathy, and spirit within your team, and then set them aside to once more focus on the work at hand. If you don’t plan for this, your team will run out of energy, and you may not know why it has happened.

Certainly the steps I have suggested here require commitment, rigor, and the willingness to challenge assumptions and mental models, but they are worth the effort. For in the process of engaging the future together, leadership teams can develop a much more confident, proactive stance toward their collective future, and forge a deep commitment to address all aspects of the sustainability of the company – economic, environmental, and social.

Paradoxically, by exploring what might happen in the world that is beyond their control, teams will develop much more confidence about what they can control – their vision and the process of creating viable options and actions to realize that vision. And the original advocates for sustainability will land a bigger prize – the entire top team engaged in a rich set of stories about the future, naturally including the sustainability issues they might have advocated for in isolation. These issues will now be embedded in a much more inclusive picture, and fully integrated into the company’s portfolio of strategies and options for the future.

## Resources

Peter Senge, Art Kleiner, Charlotte Roberts, Rick Ross, Bryan Smith, *The Fifth Discipline Fieldbook*, New York: Currency/Doubleday, 1994, pp 275-278

Peter Schwartz, *The Art of the LongView*, New York: Currency/Doubleday, 1991

## ABOUT THE AUTHOR

**Bryan Smith** is an internationally recognized author, speaker and consultant to business, education and government on leadership and innovation within the context of global sustainability. Prior to founding Broad Reach Innovations, Bryan was a senior partner for eighteen years at Innovation Associates, a firm that pioneered the field of Organizational Learning. He has been a central

contributor to the development of the field and the creation of innovative tools and strategies for building inspired learning organizations. Bryan received his M.B.A. and Ph.D. in Organizational Behavior from the University of Toronto and lives in Toronto, Canada with his family.

*bsmith@  
broadreachinnovations.com*

# Reflections

The SoL Journal

on Knowledge, Learning, and Change

Volume 7, Number 1

## **Editorial Team**

Editors-in-Chief

Karen Ayas and Peter Senge

Managing Editor

Nina Kruschwitz

Publisher

C. Sherry Immediato

Publications Assistant

Megan Bencivenni

## **Subscription Options**

To order online and for a full description of subscription options, visit our website: [reflections.solonline.org](http://reflections.solonline.org).

Receive *Reflections* as a SoL Connections member:

- USD\$125 U.S.
- USD\$135 International

One year individual subscription:

- USD\$75 U.S.
- USD\$85 International

University/Non-profit Institution

- USD\$175 United States
- USD\$195 Canada (includes 7% GST)
- USD\$195 International

For-profit Institution

- USD\$275 United States
- USD\$295 Canada (includes 7% GST)
- USD\$295 International

ISSN 1524-1734

EISSN 1536-0148

© 2006 by the Society for Organizational Learning.  
SoL is a registered trademark of the Society for Organizational Learning.

Design & Production: DG Communications ([NonprofitDesign.com](http://NonprofitDesign.com))



*Reflections: The SoL Journal* is published quarterly in electronic format and once per year as a hard copy compilation by the Society for Organizational Learning. Inquiries regarding subscriptions, address changes, back issues, reprints, and permission requests should be directed to:

[reflections@solonline.org](mailto:reflections@solonline.org)

*Reflections: The SoL Journal*

25 First Street, Suite 414

Cambridge, MA 02141 USA

+1.617.300.9515 (phone)

+1.617.354.2093 (fax)

E-mail: [reflections@solonline.org](mailto:reflections@solonline.org)

[reflections.solonline.org](http://reflections.solonline.org)