36 Balancing Inquiry and Advocacy

Rick Ross, Charlotte Roberts

Managers in Western corporations have received a lifetime of training in being forceful, articulate "advocates" and "problem solvers." They know how to present and argue strongly for their views. But as people rise in the organization, they are forced to deal with more complex and interdependent issues where no one individual "knows the answer," and where the only viable option is for groups of informed and committed individuals to think together to arrive at new insights. At this point, they need to learn to skillfully balance advocacy with inquiry.

When balancing advocacy and inquiry, we lay out our reasoning and thinking, and then encourage others to challenge us. "Here is my view and here is how I have arrived at it. How does it sound to you? What makes sense to you and what doesn't? Do you see any ways I can improve it?"

Balancing inquiry and advocacy is sometimes hard on people's cherished opinions, which is one reason why it is so difficult to master. But the payoff comes in the more creative and insightful realizations that occur when people combine multiple perspectives.

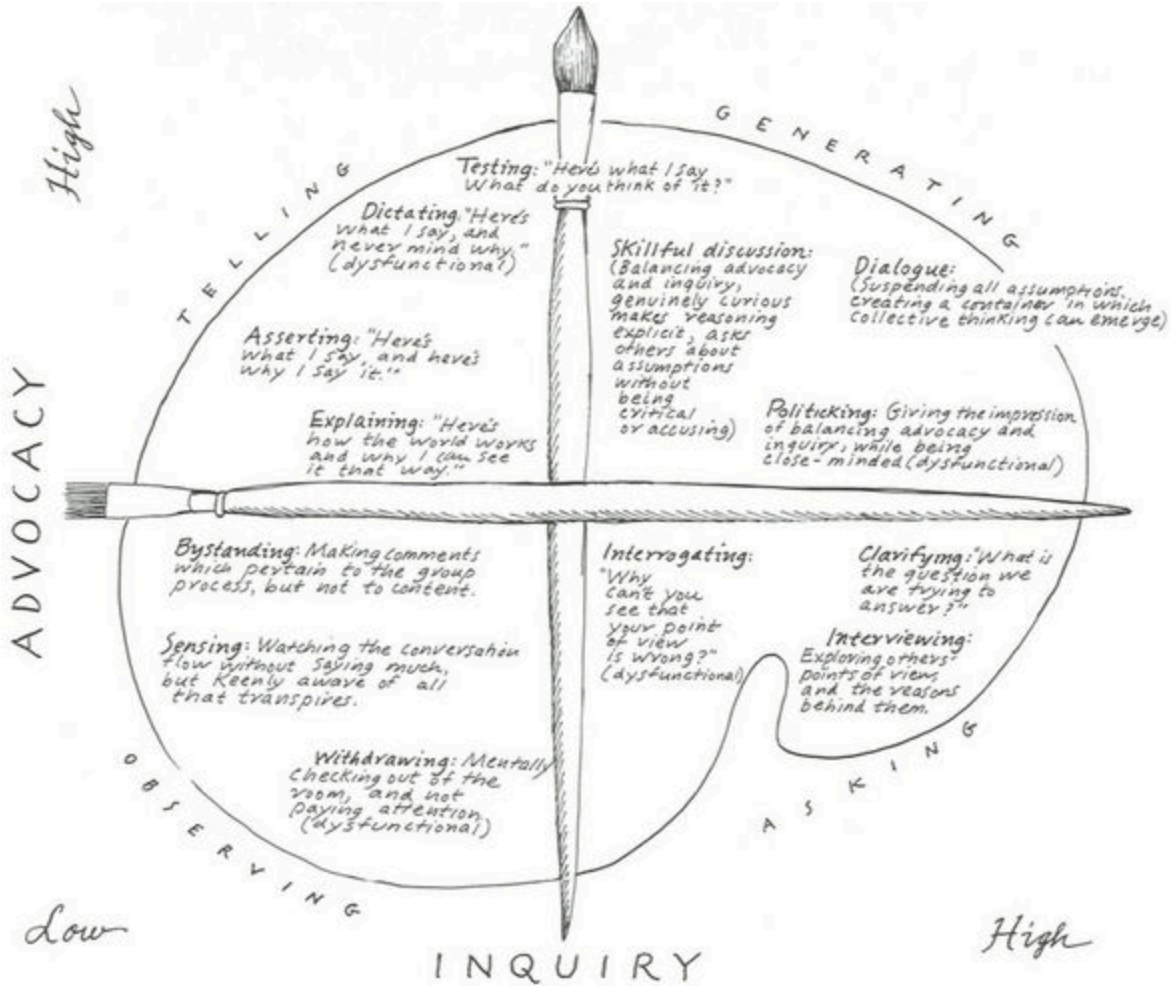
We don't recommend inquiry alone. People almost always have a viewpoint to express, and it is important to express it—in a context which allows you to learn more about others' views while they learn more about yours. Nor do we recommend that you switch in rote fashion from an adamant assertion ("Here's what I say") to a question ("Now what do you say?") and back again. Balancing inquiry and

advocacy means developing a variety of skills. It's as if all the "colors" of conversation could be spread out on an imaginary palette. As the creator of your part of the conversation, you should be able to incorporate styles from all four quadrants of the palette. *

This palette chart, of course, is only the beginning of a taxonomy of roles which people can play in conversation. There are probably a dozen more distinct combinations of varying levels of inquiry and advocacy, each with a different impact.

There are dysfunctional forms of both advocacy and inquiry. For example, in organizations, adroit people can skew the inquiry process by relentless "interrogating," without caring at all for the person being questioned. In the same vein, advocacy can feel like an inquisition if the advocate simply "dictates" his point of view, while refusing to make his reasoning process visible. People who are unwilling to expose their thinking may also "withdraw" into silence, instead of taking the opportunity to learn through observation.

***This diagram is an expansion of the "Inquiry/Advocacy matrix" developed by Diana McLain Smith.**



One of the most destructive conversational forms is “politicking,” in which there is no overt argument—just a relentless refusal to learn while giving the impression of balancing advocacy and inquiry. In workshops, we see this form sometimes when people who have read *The Fifth Discipline* play “The Beer Game.” This game is a mock production-and-distribution system simulation, demonstrating how the structure of a system determines behavior. From the description of the game in *The Fifth Discipline* , * some readers conclude the best winning strategy is deliberately under-ordering beer and remaining in backlog throughout the game. When these people show up to play, they cling to their mistaken impression at all costs. Their strategy is disastrous for their team’s score, and it would be disastrous in real life, because businesses which remain in backlog don’t keep their customers. Nonetheless, these players refuse to consider any other course of play. When people ask them to change for the sake of their

teammates, they don't argue back. They simply call attention to their "superior" status: "Look, I've read the book. Trust me. I know what I'm doing."

It is said that each of us has a natural predilection toward either advocacy or inquiry. Debate and law teach advocacy; journalism and social work (if they're practiced well) teach inquiry. Men are rewarded more for advocacy; women are more rewarded for inquiry. In the South, women are even taught that it is a sign of poor breeding to state what you want or need. (Instead of saying, "Can you get me a mint julep?" a thirsty woman would say, "It's a terribly hot day. Wouldn't it be wonderful if we all had some special refreshment?") During the 1970s, many women had a hard time with advocacy, but now that more women have joined managerial ranks in organizations, members of both genders are becoming more adept at balancing the two forms.

***T*he Fifth Discipline* , p. 27ff.**

Protocols for balancing advocacy and inquiry

BALANCING ADVOCACY AND INQUIRY IS ONE WAY FOR INDIVIDUALS , BY themselves, to begin changing a large organization from within. You don't need any mandate, budget, or approval to begin. You will almost always be rewarded with better relationships and a reputation for integrity.

The purpose of these conversational recipes is to help people learn the skills of balancing inquiry and advocacy. Use them whenever a conversation offers you an opportunity to learn—for example, when a team is considering a difficult point that requires information and participation from everyone on the team. *

Also see "Opening Lines" (this page).

These protocols were adapted, with many changes, from course material developed for *Leading Learning

Organizations **(1993, Encinitas, Calif.: Ross Partners); from material developed by Diana McLain Smith and Philip McArthur of Action Design; and from *The Fifth Discipline* , pp. 200–1.**

1. PROTOCOLS FOR IMPROVED ADVOCACY:

Make your thinking process visible (walk up the ladder of inference slowly).

What to do	What to say
State your assumptions, and describe the data that led to them.	*"Here's what I think, and here's how I got there."*
Explain your assumptions.	*"I assumed that …"*
Make your reasoning explicit.	*"I came to this conclusion because …"*
Explain the context of your point of view: who will be affected by what you propose, how they will be affected, and why.	
Give examples of what you propose, even if they're hypothetical or metaphorical.	*"To get a clear picture of what I'm talking about, imagine that you're the customer who will be affected …"*
As you speak, try to picture the other people's perspectives on what you are saying.	

Publicly test your conclusions and assumptions.

What to do	What to say

Encourage others to explore your model, your assumptions, and your data. Refrain from defensiveness when your ideas are questioned. If you're advocating something worthwhile, then it will only get stronger by being tested.	*"What do you think about what I just said?" or "Do you see any flaws in my reasoning?" or "What can you add?"*

What to do	What to say
Reveal where you are least clear in your thinking. Rather than making you vulnerable, it defuses the force of advocates who are opposed to you, and invites improvement. Even when advocating: listen, stay open, and encourage others to provide different views.	*"Here's one aspect which you might help me think through …"* *"Do you see it differently?"*

2. PROTOCOLS FOR IMPROVED INQUIRY:

Ask others to make their thinking process visible.

What to do	What to say
Gently walk others down the ladder of inference and find out what data they are operating from.	*"What leads you to conclude that?" "What data do you have for that?" "What causes you to say that?"*
Use unaggressive language, particularly with people who are not familiar with these skills. Ask in a way which does not provoke defensiveness or "lead the witness."	Instead of *"What do you mean?"* or *"What's your proof?"* say, *"Can you help me understand your thinking here?"*

Draw out their reasoning. Find out as much as you can about why they are saying what they're saying.	*"What is the significance of that?" "How does this relate to your other concerns?" "Where does your reasoning go next?"*
Explain your reasons for inquiring, and how your inquiry relates to your own concerns, hopes, and needs.	*"I'm asking you about your assumptions here because …"*

Compare your assumptions to theirs.

What to do	What to say
Test what they say by asking for broader contexts, or for examples.	*"How would your proposal affect …?" "Is this similar to …?" "Can you describe a typical example …?"*
Check your understanding of what they have said.	*"Am I correct that you're saying …?"*
Listen for the new understanding that may emerge. Don't concentrate on preparing to destroy the other person's argument or promote your own agenda.	

3. PROTOCOLS FOR FACING A POINT OF VIEW WITH WHICH YOU DISAGREE:

What to do	What to say
Again, inquire about what has led the person to that view.	*"How did you arrive at this view?" "Are you taking into account data that I have not considered?"*
Make sure you truly understand the view.	*"If I understand you correctly, you're saying that …"*

Explore, listen, and offer your own views in an open way.	*"Have you considered …"*
Listen for the larger meaning that may come out of honest, open sharing of alternative mental models.	
Use your left-hand column as a resource.	*"When you say such-and-such, I worry that it means …"*
Raise your concerns and state what is leading you to have them.	*"I have a hard time seeing that, because of this reasoning …"*

4. P ROTOCOLS FOR WHEN YOU' REATAX I MPASSE:

What to do	**What to say**
Embrace the impasse, and tease apart the current thinking. (You may discover that focusing on "data" brings you all down the ladder of inference.)	*"What do we know for a fact?"* *"What do we sense is true, but have no data for yet?"* *"What don't we know?"* *"What is unknowable?"*
Look for information which will help people move forward.	*"What do we agree upon, and what do we disagree on?"*
Ask if there is any way you might together design an experiment or inquiry which could provide new information.	
Listen to ideas as if for the first time.	
Consider each person's mental model as a piece of a larger puzzle.	*"Are we starting from two very different sets of assumptions here? Where do they come from?"*
Ask what data or logic might change their views.	*"What, then, would have to happen before you would consider the alternative?"*

Ask for the group's help in redesigning the situation.	*"It feels like we're getting into an impasse and I'm afraid we might walk away without any better understanding. Have you got any ideas that will help us clarify our thinking?"*
Don't let conversation stop with an "agreement to disagree."	*"I don't understand the assumptions underlying our disagreement."*
Avoid building your "case" when someone else is speaking from a different point of view.	

37 Conversational Recipes

Robert Putnam

The help Robert Putnam, a partner in Action Design, gave us in this part of the book emerged from his work on this piece for us, which in turn was based upon a more in-depth article for action science practitioners: "Recipes and Reflective Learning: 'What Would Prevent You from Saying It That Way?' " by Robert Putnam, in The Reflective Turn: Case Studies in and on Educational Practice, (*1991, New York: Teachers College Press). Philip McArthur, whose "Opening Lines" (this page) provide an example of recipes, is also a partner in Action Design.*

People who are learning reflection and inquiry skills very quickly develop a repertoire of stock phrases. I call these phrases "recipes" because most of them are used like step-by-step procedures for getting a particular response. For instance, here is a conversation where "Paul," an in-house consultant, is trying to help "Linda," a supervisor, delve into the assumptions underlying a troublesome incident where someone had been fired:

PAUL: Are you and the other supervisors going to talk about this incident, to learn from it?

LINDA: I'm not going to bring it up.

PAUL: *What prevents you* from bringing it up?

LINDA: Nothing prevents me. What do you want me to say?

Later, Paul reflected, “I seemed to get myself into trouble with that line that I couldn’t get myself out of.” Then he described what went through his mind at that moment: “Am I handling it right? Am I too concerned about what I’m doing? Am I getting stuck in the technique?”

The value of recipes

PAUL’S REFLECTIONS SUGGEST EXACTLY THE DIFFICULTIES WE EXPECT IN the early stages of using any new technique. It feels unnatural. When he got into difficulty, he doubted his ability to follow-through consistently. And his self-consciousness made it even less likely that he would follow through competently. At first glance, you might assume that he was in a terrible double bind; he didn’t have the sophistication to use inquiry techniques with skill, so he was stuck with “recipes”—canned remarks that “parrot” (as Paul himself pointed out) what a skilled intervenor would say, and that would inevitably “get him in trouble.”

But the learning of skills begins with recipes. For instance, if you decide the ladder of inference (see this page) is useful, how do you learn to apply it? Without practice, the concept won’t be second nature; but until it’s second nature, you can’t practice with it effectively. So you short-cut the dilemma by following a set of rules:

1. Identify the conclusions someone is making.
2. Ask for the data that lead to the conclusion.
3. Inquire into the reasoning that connects data and conclusion.
4. Infer a possible belief or assumption.
5. State your inference and test it with the person.

Working recipes into obsolescence

RECIPES LIKE THESE PRODUCE USEFUL DATA, AND THEY COME QUICKLY to the tongue. Their vividness may also aid in focusing reflection.

But there is a caveat. Rules and guidelines can play a vital role only when we deliberately use them to move beyond rule- and guideline-

based behavior. Recipes must be made to work themselves out of a job.

Here are some rules and guidelines for doing so. (Of course, these are also recipes; so they, too, must be made to work themselves out of a job.)

- *Examine your own conversations later.*
  Describe and reflect upon your use of the "recipes." Paul, for instance, used "What prevents you?" as a kind of advocacy, implying that Linda was hypocritical. But through his own retrospective critique, Paul realized the prejudgment he had made: "I see now, maybe it wasn't inconsistent for her to say, 'I don't want to talk about it now.' It may have been just a timing kind of thing. But I wasn't hearing that. I was sort of forcing it into an inconsistency kind of thing." For Paul, this sort of self-judgment is an invaluable way to learn.
- *Seek out generic strategies for improving your use of "recipes."*
  When you look at your earlier conversations, try to figure out general strategies for various impasses. For instance, Paul worked with a manager named Mike, who had given a mixed message to a subordinate. Over and over, Paul asked Mike what had led him not to say more directly what he really wanted. Later, listening to tapes of the conversation, Paul realized a maxim: rather than getting people in situations like Mike's to admit they are wrong, you can be more helpful by naming how they are caught in a dilemma and focusing on how they can manage it more successfully. Paul went on to use this maxim very successfully in work with other people.
- *Put yourself in the other person's vantage point.*
  This is a difficult rule to remember to follow. Paul, for instance, with all his training and reflection, still found himself advocating his point of view in a series of highly charged meetings about downsizing. Even his "recipes" were just subtle ways of trying to manipulate a plant manager, whose name was Greg, to change his mind. But finally, when Greg responded to one of Paul's recipes by saying what he feared his boss would do, Paul (as he said later) felt something shift within him. He began to talk openly in the group about how he might think differently "if I put myself in Greg's shoes." Greg, in response, articulated a breakthrough scenario. Gradually the group worked

through its impasse and developed a proposal for restructuring their division more intelligently.

- *Ask for the perspective of the people you're working with.*
  By this time, Paul had moved beyond recipes. He was able to ask the people he worked with, "Am I inviting enough inquiry in my own advocacy? I tried to, but I don't know if it was just pro forma." His interventions had become less stilted, more natural. And his attention had turned away from "Will I or won't I get them to do what I think we should?" and more to "What can we accomplish?"

Recipes, when you first start using them, are gimmicks. You'll use them within your taken-for-granted way of framing the situation. But as you gain experience with them, the frame too may shift. You may be able to jump, without planning in advance exactly how to do it, from superficial technique to a deeper sense of practice.

38 Opening Lines

Philip McArthur

When ...	... you might say ...
Strong views are expressed without any reasoning or illustrations ...	*"You may be right, but I'd like to understand more. What leads you to believe …?"*
The discussion goes off on an apparent tangent ...	*"I'm unclear how that connects to what we've been saying. Can you say how you see it as relevant?"*
You doubt the relevance of your own thoughts ...	*"This may not be relevant now. If so, let me know and I will wait."*
Two members pursue a topic at length while others observe ...	*"I'd like to give my reaction to what you two have said so far, and then see what you and others think."*
Several views are advocated at once ...	*"We now have three ideas on the table [say what they are]. I suggest we address them one at a time …"*
You perceive a negative reaction in others ...	*"When you said [give illustration] ... I had the impression you were feeling [fill in the emotion]. If so, I'd like to understand what upset you. Is there something I've said or done?"*
You perceive a negative reaction in yourself ...	*"This may be more my problem than yours, but when you said [give illustration] … I felt*

	… Am I misunderstanding what you said or intended?"
Others appear uninfluenceable …	*"Is there anything that I can say or do that would convince you otherwise?"*

39 Bootstrapping Yourself into Reflection and Inquiry Skills

Jeff Dooley

If you are intrigued by the reflection and inquiry skills in this part of the book, you may want to delve deeper into "action science"—the body of theory and practice from which they emerged. Here is a guide to finding your way through the literature—with reviews by Rick Ross, by Harvard graduate student and Buckminster Fuller associate Amy Edmondson, and by Jeff Dooley, an organization development consultant based in Benicia, California.

Jeff set out three years ago to teach himself "action science" through self-study. He has written a longer history of his odyssey, aimed at professional consultants and practitioners, available by sending a stamped, self-addressed envelope to his address on this page .

Can an individual acquire competence in reflection and inquiry skills through self-study? Is there a theory to guide us in acquiring that competence? If, like most people, we are not fully aware of the state of our own mental models, then how can we progress through a program of self-designed learning without being undermined by our inner defenses?

Three years ago, I set out to put those questions to the test. I began by reading the important books in the field, but that is only the first step: it's easy to espouse the principles of inquiry and reflection, but difficult to acquire a frame of mind which is open to this type of learning.

Thus, I found that I had to combine my study with regular practice. At first, before I had opportunities to use the skills in organizational consulting, my wife Lynn and I practiced them together. Talk around our

kitchen table took on a lingering, almost agonizingly slow quality as we considered every word. We gradually learned to inquire into the sources of each other's views, to catch ourselves when we tried to exert unilateral control over the conversation, and to bring to the surface our long-cherished and secret, powerful defensive routines.

I have since expanded my practice with friends, colleagues, and in study groups. Over time, if you continue, you will begin to see the importance of art and creativity to this practice. During one session, for example, when participants critiqued each other's "left-hand column," they could not see that they were criticizing each other in a harsh, judgmental manner—precisely in violation of the advice they were giving. Instead of pointing this out, I asked if I could role-play as one of the critics, using his exact words, while he role-played the other person. He felt angry and defensive at hearing them, and only then could he see the seeds of ineffectiveness in his own behavior. Can you learn to do that kind of role-play from a book? Probably not—but these books are worthwhile starting points.

OVERCOMING ORGANIZATIONAL DEFENSES
by Chris Argyris (1990, Needham Heights, Mass.: Allyn and Bacon).

This is Chris Argyris's most accessible book for managers. It is a slim book, built around the idea that everyday "defensive" behavior—behavior which makes us feel most in control in the short run—is the worst possible way for people to act in organizations, because it masks the actual dynamics of a situation. Why, for instance, did the "budget whiz-kid" of the Reagan era, David Stockman, fail to stop the debt crisis he saw coming? Because infighting in the White House organization was never allowed to appear as infighting. Why did the NASA ***Challenger*** disaster take place, although engineers at the contracting companies reported safety problems ahead of time?

Because nobody asked why higher-level managers weren't listening to them. The first five chapters show how organizational defenses come to be, and the last four chapters offer strategies for undoing them.—**RR**

"SKILLED INCOMPETENCE" **by Chris Argyris,** *Harvard Business Review* , September 1986, HBR Reprint #86501;

"TEACHING SMART PEOPLE HOW TO LEARN" **by Chris Argyris,** *Harvard Business Review* , May-June 1991, HBR Reprint #91301.

These two *Harvard Business Review* article reprints are full of examples of left-hand-column and ladder-of-inference exercises, and how people use them.

"Skilled Incompetence" focuses on the premise that the most skilled people in day-to-day communication can't unearth their mental models until they "unlearn" how to protect themselves from feeling threatened.

"Teaching Smart People How to Learn," based on Argyris's fifteen years of work with management consultants, suggests that most of us can cultivate the intellectual and emotional vulnerability of failure, without having to actually fail.—**RR**

ORGANIZATIONAL LEARNING: A THEORY OF ACTION PERSPECTIVE **by Chris Argyris and Donald A. Schön** (1978, Reading, Mass.: Addison-Wesley).

Argyris and Schön introduce action maps: charts showing how dysfunctional mental models, held by different people in the same organization, reinforce and influence each other. For instance, in a case at a Third World technology institute (this page), the local office "expert," and the central office "expert" couldn't agree on how to assign tasks to their staff. They did not recognize or discuss this lack of agreement; instead, they engaged in fancy footwork to avoid facing it, which only heightened the severity of their dilemmas. As more people get involved, these interpersonal dynamics escalate into "secondary inhibiting loops"—coalitions, group-think, and committees which spend their time second-guessing and outmaneuvering each other. Not only do these dynamics inhibit "Model II" behavior—they reinforce themselves because they are designed, in the first place, to camouflage uncorrectable errors.—**JD**

ACTION SCIENCE **by Chris Argyris, Robert Putnam, and Diana McLain Smith** (1985, San Francisco: Jossey-Bass).

Halfway through *Action Science* , I began to appreciate what Argyris and his associates were trying to do: provide an account of the steps of an in-depth organizational learning process. *Action Science* is also a critique of traditional social science in which the experimenter remains aloof from the experiment.

Interventionists trying to change organizations may already possess skills such as "balancing advocacy with inquiry" and "left-hand column" analysis. But the interventionist must also set an

example: avoiding any form of coercion or unilateral control of participants, even under the guise that it is in the participants' best interest to be coerced. There's a paradox here—how do you bring about free and informed consent, without controlling the group, when participants' automatic (defensive) behavior may block their chances for free and informed consent?

Part Three of *Action Science* is the road map of an escape route from this paradox. It is the account of a year-long intervention during which participants were shocked to see how they acted in violation of their own espoused values, then learned to understand and map their mental models and the causal chains of behavior reinforcing those models, and finally learned to invent and produce new behaviors consistent with "Model II" values. This section is a template for designing an action science intervention of your own.—**JD**

KNOWLEDGE FOR ACTION **by Chris Argyris** (1993, Son Francisco: Jossey-Boss)

This book represents the best account to date of the learning process Argyris facilitates in his interventions. In giving this account of a five-year intervention with a team of consulting firm directors, Argyris introduces a key concept which comes close to identifying what he thinks he helps produce: "actionable knowledge." Actionable knowledge not only illuminates a strategy (for instance, a strategy a manager might use to abet someone else's learning), but it also must specify the skills the manager would need to carry out the knowledge, and the conditions that must be created in the organization.

The book's chapters are organized around key episodes in the learning process, and the transcripts of these episodes provide rich harvests of hints about what the action science process is like for an

observer. Argyris gives us insights into his own approach by scoring the transcripts and providing detailed accounts of difficult episodes—accounts which include his own on-line interventions and what he intended. One empathizes with Argyris when he notes regret for a particular strategy he used in a difficult moment and contrasts it with the behaviors he might have produced instead. There is also a chapter on an episode, three or so years after the work had begun, during which two consultants went ballistic on one another, despite their increasing skill.—**JD**

ORGANIZATIONAL CULTURE AND LEADERSHIP **by Edgar H. Schein** (1985, 1992, San Francisco: Jossey-Bass).

An organization's culture can be seen as its members' collective mental models—which is why you cannot change an organization without investigating its cultural assumptions. In Edgar H. Schein's model, cultural assumptions are deeply influenced by beliefs held by founders and leaders, carrying on for years after the founders themselves have ceased to run the company. Unlike Chris Argyris, Schein sees most organizations as essentially healthy, and willing, patients. They lack certain skills and maybe handicapped by dysfunctional values, but these gaps can be remedied through careful clinical work.

Organizational Culture and Leadership contains two chapters describing a participative way to decipher an organization's culture. A researcher starts by eliciting data about ***cultural artifacts*** such as dress codes, ways of talking to the boss, and other visible evidence. The most recent hire is asked to start off the list, to offer the unjaded observations of a newcomer. The second level of data encompasses ***espoused values—*** that is, readily offered reasons for the visible cultural artifacts. This requires people to think slightly more deeply to generate explanations such as "We value problem solving more than

formal authority," which, once stated, are readily recognized by everyone. The third and most subtle level captures ***shared underlying assumptions*** , which require some probing to be uncovered, through discussion of inconsistencies between artifacts and espoused values. Finally, the researcher pulls together the findings from the group and together they examine what assumptions may aid and/or hinder progress on the stated change goals.—**AE**

Writing to Your Loyalties

Art Kleiner

The purpose of most memos and reports is not to promote learning, or even to communicate, but to select a version of the truth to present for "the record"—for your boss, for the outside world, or for posterity. This puts writers within learning organizations in a difficult bind. Should they write the truth as the organization needs to hear it, or should they write what is politically expected of them? Fortunately, it also means that writing, if approached correctly, can be a very effective solo vehicle for surfacing mental models.

This is a tough exercise, especially for people who don't like to write. But those are the people whom it will help the most. (I have used it to help people with writer's block.) The exercise asks you to create a fair amount of "scaffolding"—three drafts of a report which no one will ever see, but which you need to create your final product. (That's why the word processing program is such a help.) Take consolation, however: writing your report this way, though it seems tedious, is probably much easier than doing it by the traditional method. *

PURPOSE

This exercise has two purposes: to help you see your own mental models of key people in the organization more clearly, and to

practice seeing a difficult issue through more than one perspective. It may also help you learn political acumen.

STEP 1: LISTING THE LOYALTIES

Select a difficult situation or issue facing you right now. Then write a report or memo about it. Or use this fictional example:

Your organization has discovered that it is inadvertently responsible for a health crisis in your community. You have been assigned to research the potential damage, and write a report. The report will be read by the CEO, the chief financial officer, by your immediate superior, and by the Environmental Protection Agency. You know that a version will probably be leaked to the press, so all your neighbors will see it. Your career depends on how well you put together the report.

This exercise is much more effective if you focus on a current problem of your own. Begin by listing, on a piece of paper, all the people and things you expect to feel loyal to when you write the report. Whose reactions, if they were to read the report, would be important to you? List as many as you can. Some may be hypothetical or symbolic entities, buried deep inside you.

A list of "loyalties" for the health crisis report might include:

My boss	The CEO
My spouse and children	My co-workers
My peers in other functions	My subordinates
My neighbors	My sense of the quality of my work
My sense of the truth	Each of the people I talked to in gathering information
My mentor, whose attitudes I've ingrained in my judgment	Key staff people
The newspaper reporter who called me for information	The schoolteacher I met at a PTA meeting last year
My image of my own future self	My ideal of myself from when I was fourteen
My concept of science	The P.R. department

The union representative Etc. (fill in your own)

***This exercise is based, in part, on exercises and insights developed by James L. Evers (see page 490).**

OVERVIEW

Writing three drafts of a different report to three audiences, and then examining the differences.

TIME

Ten to twenty hours, spread over a week or two.

STEP 2: PICK TWO-PLUS THE TRUTH

Most likely, nearly all of these loyalties are important to you in some respect. But pick two which you care strongly about. (Later, you'll return for the others.) *Ideally, they should be two people, or groups of people, who will actually read your report when it is finished.*

In addition to the two loyalties you selected, you should also mentally select your loyalty to the truth, as you see it.

Write down, or circle, the names of the two loyalties you have chosen. In the step after next, you will write a separate memo for each of them. But for now, put their names aside. It would only get in your way.

STEP 3: THE REPORT FOR THE TRUTH

Write a description of the situation—a report—as if truth were the only loyalty you had. Write it, in other words, as if for a time capsule, to be opened after your death. What has happened—and what is the significance?

A full report might be too lengthy, so we recommend you write only three paragraphs:

a. *A "curtain-raiser" (opening paragraph).*

Imagine that people, 100 years hence, have opened the time capsule

and are reading your report. What do you want them to see first to pique their interest? This paragraph need not tell the whole story; in fact, it should probably be limited to some minor part of the plot. But it should express some aspect of why the story will be interesting.

b. *A "nut graf" (thematic core paragraph).*
Journalists use the expression "nut graf" to describe the paragraph with the kernel of what happened: who, what, where, when, why, and what for. What, in a nutshell, happened here? What's its significance? Who was involved?

c. *An ending (closing paragraph).*
What do you want the people of the future to feel when they've finished reading your report? What is your message for them? What has the truth suggested to you? If there is a moral, or action plan, articulate it here.

After you are finished with these three paragraphs, take a break. Come back after a day or two. (The break will clear your mind, and help you focus more coherently on the next step.) The piece you have just written will become your "control group," in the experiment you are about to run.

STEP 4: THE REPORTS FOR YOUR LOYALTIES

Now go back and write a separate report for each of the two "loyalties" you selected. As you write, keep an image in mind of that person reading every word you write. Remember, you probably will not show this writing to this person; however, it will become "scaffolding" for the actual report you eventually write.

Once again, stick to three paragraphs:

a. *A curtain-raiser.*
What would this person want to know first? What would grab him or her? What could you say intriguing enough to make your reader continue reading?

b. *A "nut graf."*
What's the essence of the situation, as you would wish to express it to this person?

c. *An ending.*
Where do you want to leave him or her?

Don't worry about rewriting; just execute a first draft. After you've done the two or three reports, three paragraphs each, take another one- or two-day break.

STEP 5: LOYALTY ANALYSIS

You now have three separate reports. Read them again, as if you were reading them for the first time. Imagine that you have found them in the time capsule. You do not know the author, nor do you know any of the people they are addressed to. Answer these questions:

Look first at the report written to the "Truth."

1. What impression do you get of the author of this report?
2. What data (actual text from the report) leads you to this conclusion?
3. What impression, *only from the report* , do you get of the story and the facts? How important is this event?
4. What specific sentences and phrases actually contribute to this impression?

Now look at the report to person A.

5. What impression do you get, *only from the report* , of person A?
6. What text leads you to this impression? For example, what is written to A that does not appear in any other report? What is emphasized for A?
7. Look at the "curtain-raiser" paragraph. What does the author of this report believe A cares about?
8. What does the author want A to ignore or look away from? For example, what facts or details are omitted from this report?
9. What does the author want A to conclude? What actions does the author want A to take?

0. Imagine now that you showed this page of answers to A. Would A agree with the assessment and assumptions here? Would A be pleased or chagrined?
1. Can the assumptions in your answers to these questions be tested? Is there any reason to think that they might not be true?

Now answer the same questions (5–14) for your report to B.

STEP 6: THE FINAL REPORT

You still have a final report to write. But you now have three versions of a beginning, a "nut graf" or kernel paragraph, and an end.

You can choose parts of your final draft from among your versions. Choose deliberately, still concentrating only on loyalties A, B, and the truth. Then, when you are finished with the first draft, look it over with each of your other "loyalties" in mind. What will need to be added or subtracted for each? Articulate the changes needed to make it palatable to each of the people you would show it to. If the loyalties conflict too much, perhaps you should consider releasing two or three separate documents.

STEP 7: TESTING YOUR ASSUMPTIONS (OPTIONAL)

You now have, if you wish, a simple (albeit politically sensitive) way to test your assumptions. Show the material you have written so far to A and B. Show them their version, versus the version written for the "truth," versus the equivalent three paragraphs of your final version. Tell them you are trying to decide which material to emphasize in the final draft. Ask them which they prefer.

It is always a bit frightening to reveal assumptions in written form. However, most people are fairly tolerant of something they know is an early draft, particularly if it's marked as such. They will often critique an early draft far more constructively, and openly, than they would critique a draft they think is final. If you are willing to show some of your "scaffolding" to others, it can open inquiry on issues that were never raised before, because no one thought to raise them until they were written down.

Multiple Perspectives

Charlotte Roberts, James Boswell

The more perspectives on an issue that a team can consider, the more possibilities exist for effective action. The point is not just to look at one or two extremely different perspectives, but to capture as many differences of nuance as possible.

STEP 1: DESIGNING THE WHEEL

Create a disk about eighteen inches in diameter from thick paper which can be written upon. Lay the wheel in the center of the table. Write a title or draw a symbol for the problem in the center of the wheel.

Draw lines across the wheel as if cutting a pie, dividing the wheel into equal slices—one for each member of the team. Write everyone's name on a slice of the wheel.

Then write up cards with the names or titles of eight or more key stakeholders, for the problem being explored. Some stakeholders may be internal: the VP of finance, regional sales managers, technicians, supervisors, or hourly workers. Others will include key external groups: customers and suppliers, government regulators, competitors, and consumers. Set out one flip chart for each key stakeholder.

PURPOSE

To open up or widen a team's perspectives—the points of view from which the team members regard a problem.

OVERVIEW

Rotating between roles encourages members to see an important issue from as many vantage points as possible.

PARTICIPANTS

An intact team, working on a real problem.

TIME

Twenty minutes or more.

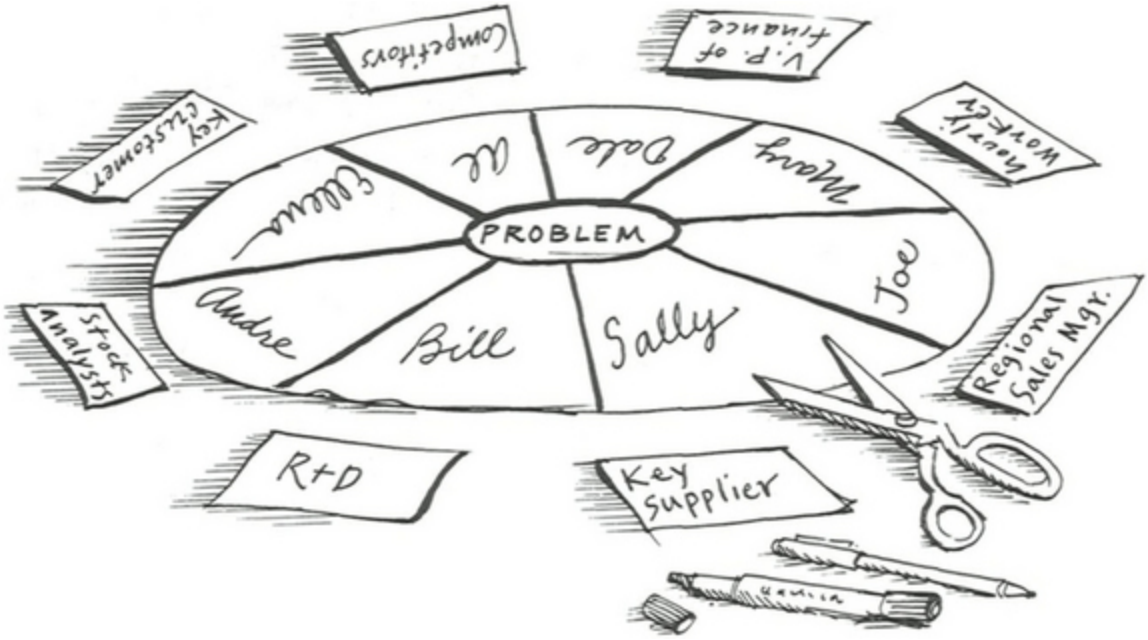
SUPPLIES

Flip charts, note cards, markers, Post-it notes, and thick paper for the "perspective wheel." If the wheel seems unwieldly, a similar effect can be achieved by handing cards from one person to the next, or shuffling and dealing the cards after each turn.

ENVIRONMENT

A comfortable meeting room with a central table and room for numerous flip charts.

Place the cards, evenly spaced, around the edge of the wheel, so it looks something like this:



STEP 2: PLAYING THE WHEEL

When the wheel is turned one space, each person's name will stop in line with one of the key stakeholders. At each turn of the wheel, each team member must add to the understanding of the perspective to which he or she has moved.

For example, Bill's name lands adjacent to the CEO card at the edge of the wheel. Bill walks to the flip chart for that stakeholder position and

completes this sentence, “From my perspective as CEO, the critical elements within this situation are …”

Comments may concern the problem (perhaps written in black) or ideas for leverage (perhaps written in green), but all comments should be written as if you are the person whose card you have landed on.

You are not permitted to “pass.” If you feel as if you don’t understand this stakeholder’s perspective, ask yourself these questions, playing the role of that person:

Time: What time frame am I operating within? When did I begin to look at the problem? When will it, effectively, be a nonissue for me?

Expectation: What do I expect will happen, if all continues as expected? What do I hope (or demand) should happen? Who expects me to deal with this? What do they want me to do?

Examination: How closely am I willing to examine the problem? From how far away do I see it? What else is aggregated with this problem as I see it?

Understanding: What do I see about the problem which no one else sees? What understanding of the problem occupies my vision? What data is my understanding of the problem based upon?

STEP 3: WORKING WITH THE PERSPECTIVES

At some point, you will find yourself with full descriptions of each perspective. Now, as a team, you can talk through the situation from each of them. You may drop deeper within a vantage point: for example, you might start out with one stakeholder representing “finance.” Gradually, you might realize there are three distinct “finance” vantage points, each requiring its own flip chart page.

In each case, how does the way you are thinking and seeing limit your capacity for dealing with a chronic or high-voltage issue?

40 Creating Scenarios

Art Kleiner

Contrary to what many people believe about scenario exercises, their purpose is not prediction. A scenario, as longstanding scenario innovator Napier Collyns puts it, is "an imaginative leap into the future." You don't predict what will happen: you posit several potential futures, none of which will probably come to pass, but all of which, make you more keenly aware of the forces acting on you in the present. You know a scenario exercise has been successful when you feel a premonition that shakes your worldview. Kees van der Heijden (who describes his own scenario work on this page) calls this the "aha" experience.

A scenario planning exercise is a bit like a storytelling workshop, set up to bring forth distinctions and phenomena that the conventional wisdom ignores. Discerning the differences between Iran and Saudi Arabia, while everyone else viewed the "Arab nations" as a single bloc, helped Royal Dutch/Shell scenario planners anticipate the oil shortages of the 1970s. Seeing the demographics and economic pressures on the Soviet Union, while Western politicians saw only an "evil empire," helped Shell's scenario planners foresee *glasnost.* Looking at the slow-starting but ultimately explosive dynamics of advertising revenue in new media helped my own scenario workshop envision the current wave of mergers between telephone and cable television companies. The method can be applied to subjects ranging from the price of gold to the economic stability of East Asia; from the future of energy efficiency to the competitiveness of hospitals.

People often want to condense scenario work to a half-day or weekend session, but it's becoming clear that such efforts usually don't give people enough time to delve past their existing preconceptions. The annual workshop I lead for artists and managers at New York University's interactive telecommunications program meets twice a week for six straight weeks, supplemented by regular conversations over computer network. Even that amount of time feels cramped. Each of the steps in that six-week process is an exercise in reeducation: creating a new collective set of assumptions about the outside world, which none of us could reach on our own.

STEP 1: REFINING OUR SENSE OF PURPOSE

Scenarios provoke genuine learning only when they answer genuine concerns. Otherwise, they are merely an academic exercise. The concerns should be compelling, shared by the entire group (ideally of eight to twenty people), and best with uncertainty. "Should we move toward domestic or overseas markets?" "What sort of career should we prepare students for?" "How can we build democratic institutions in South Africa?" Articulating your focus is not a trivial task, especially because the participants should ideally be diverse people with a common interest. As with a vision exercise, it requires moving past the concerns which people *think* they have to the concerns which truly motivate them.

STEP 2: UNDERSTANDING DRIVING FORCES

Scenarios are built upon the distinction between two types of driving forces. Predetermined forces are reasonably predictable. We all know, barring unforeseen calamity, how many twenty-year-olds will exist in any country nineteen years from now. We can assume that the pace of technological growth will continue, with costs of new devices falling at a fairly predetermined rate.

But the vast majority of forces at play are uncertain. Will investors gravitate to less-developed countries? Will consumers continue to eagerly want new media products? Will American manufacturing catch up to Japan's quality standards? You can't know the answer, but you can become far more aware of the reasons why events might move in one direction or another, and the implications of their movement.

The predetermined elements set the boundaries within which your scenarios take place; while the act of picking key uncertainties leads you to the most significant ramifications of your decision. This typically requires both intensive give and take within the group, as well as outside research. In our NYU workshop, for example, one participant demonstrated the value of outside research by investigating, on his own, how many new semiconductors it would take to develop a nationwide information highway with video available on demand. He concluded that America would have to double its chip manufacturing capacity—which dramatically changed our sense of how quickly a full-scale national digital network could emerge. For that group, whose members had tacitly assumed their immediate future was tied to such a network, this was shocking news.

STEP 3: SCENARIO PLOTS

Like working with system archetypes, developing scenarios involves considering "classic stories" in terms of your current situation. (Indeed, as a few researchers are discovering, the system archetypes on this page and this stage of scenario planning are devilishly complementary.)

You create several stories of your own, trying to make each evoke a future which pulls you past your own blinders. As you talk, you enrich the plots, developing sketches of what might plausibly happen.

For our scenarios at NYU about the future of global information networks, we gradually settled on the availability of capital as a key uncertainty. Moving in one direction led to a future we called "keiretsu world" (after the Japanese industrial consortia), in which information flows were dominated by large corporations, while another led to a "virtual world," in which large companies were no longer necessary, and devolved.

You don't care how likely or unlikely each story may be. You care about whether it illuminates your understanding. In fact, if a substantial drop in the demand for your product or service is undeniably plausible —even if it seems like the chances against it are 100 to 1—then you owe it to yourself to create a story around that event, to spark the necessary creativity and preparation that you might never need, but which is worth developing in any case.

***This short description has benefited from concepts developed by Shell scenario innovators Pierre Wack and Ted Newland; from conversations with more recent Shell alumnae Arie de Geus, Kees van der Heijden, and Adam Kahane; from seeing the work of David H. Mason, Jim Henry, and others at Northeast Consulting Resources, Boston; and from the insights of Napier Collyns, Peter Schwartz, Lawrence Wilkinson, and others at Global Business Network.**

STEP 4: STRATEGY, REHEARSAL, AND CONVERSATION

This may be the most important step. Regrettably, it is the most often ignored. Having developed two, three, or four scenario plots, you now consider each of them. What strategies would be effective no matter which of those futures came to pass? What would it feel like to live in those worlds? Some teams go so far as to rehearse the scenarios, as if they were pieces of improvisational theater, with each participant taking the part of a different key actor. It's also important to describe the scenarios to others—to get insights from the rest of the organization that may make your pictures of the world richer.

You may find that your scenarios themselves go through several iterations. That's all for the better. When you are done, you will have a language you have created, in which collective assumptions can be voiced. "Will this strategy stand up in a 'keiretsu world'?" you may ask each other. Or, if "virtual world" comes to pass, will we be prepared? *

THE ART OF THE LONG VIEW **by Peter Schwartz** (1991, New York: Currency Doubleday).

The preeminent introduction to scenario planning. Peter Schwartz has conducted scenario work at Stanford Research Institute in the 1970s, at Royal Dutch/Shell in the 1980s, and now at Global Business Network, a future-oriented information-gathering and scenario-developing company based in Emeryville, California. A naturally gifted story-teller, Schwartz covers all the key steps of the process in detail. I helped create this book; I have also seen people use it avidly. It opens up a seemingly arcane technique, and makes it feel both accessible and compelling.—**AK**

18 The Archetype Family Tree

Michael Goodman, Art Kleiner

Most of the archetypes are related strategically to each other. This diagnostic tool helps you work through those relationships. Start at the top, thinking about the nature of the phenomenon you want to understand. Is it about growth? Then work through the reinforcing (left-hand) trunk of the family tree.

Or are you trying to fix a problem? In that case, work your way through the balancing (right-hand) trunk.

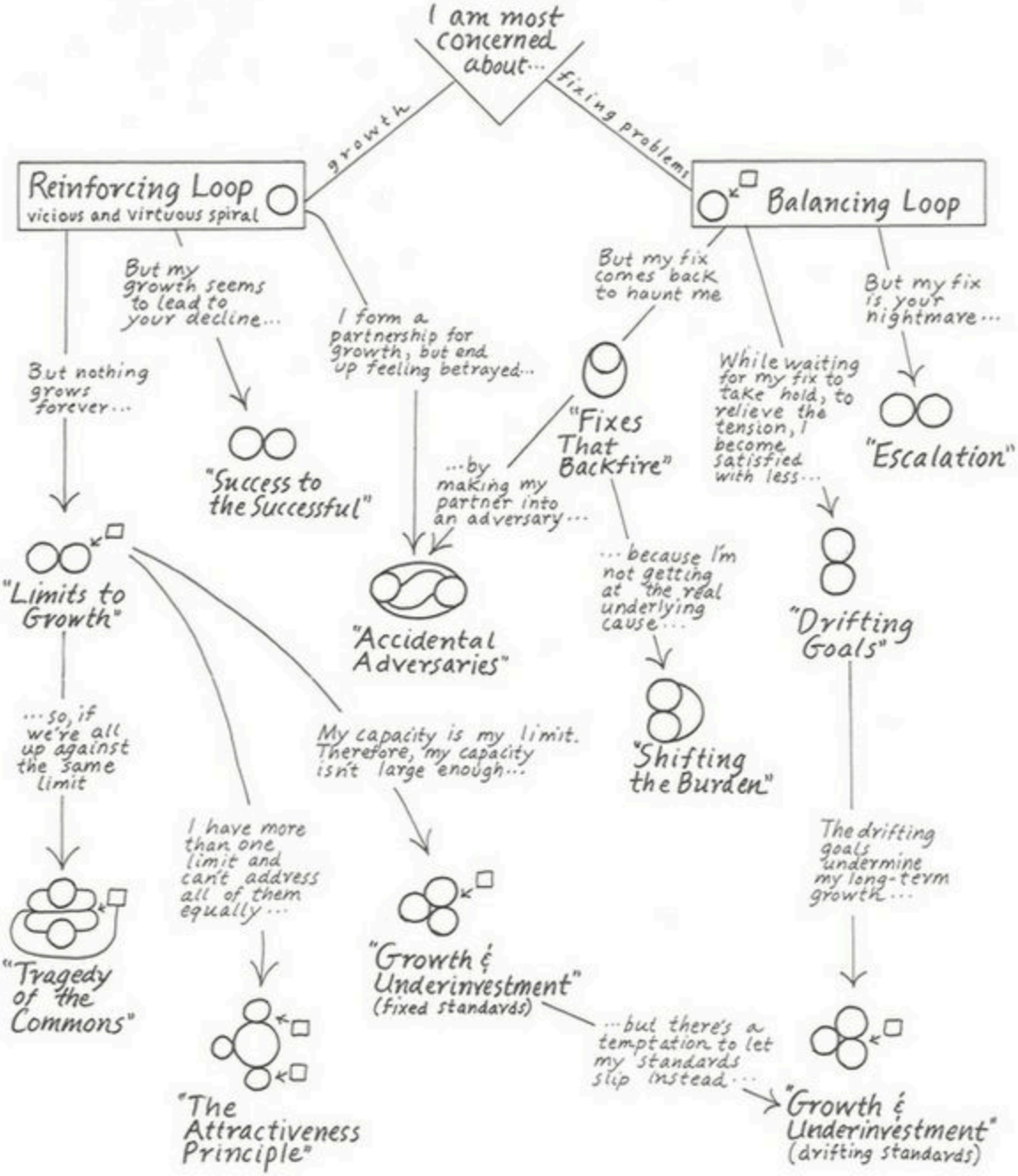
You can also use the "tree" to move to new insights about a situation. For example, after identifying a "Fix That Backfires," a revealing question to ask is: "What is the reason why we are putting so much attention on quick fixes?" The answer often has to do with the next level deeper: a "Shifting the Burden" structure. Similarly, when approaching a pernicious "Limits to Growth" situation, it's worth inquiring whether underinvestment, or a "Tragedy of the Commons," is involved. *

> **For an example of movement down the tree by "adding loops," see this page .**

In this illustration, the letter *B* represents a balancing loop, and *R* represents a reinforcing loop.

***We have discussed the most powerful archetypes here in the *Fieldbook* , but as you will see in the following**

diagram, there are at least a half-dozen others. You can read about them in *Systems Archetypes: Diagnosing Systemic Issues and Designing High-Leverage Interventions* by Daniel H. Kim (1993, Cambridge, Mass.: Pegasus Communications). Or see *The Fifth Discipline* , pp. 378–90; issues of *The Systems Thinker;* and course materials produced by Innovation Associates.


I am most concerned about...
growth
fixing problems
Reinforcing Loop
vicious and virtuous spiral
Balancing Loop
But my growth seems to lead to your decline...
I form a partnership for growth, but end up feeling betrayed...
But my fix comes back to haunt me
But my fix is your nightmare...
But nothing grows forever...
"Success to the Successful"
"Fixes That Backfire"
"Escalation"
While waiting for my fix to take hold, to relieve the tension, I become satisfied with less...
...by making my partner into an adversary...
"Limits to Growth"
"Accidental Adversaries"
...because I'm not getting at the real underlying cause...
"Drifting Goals"
...so, if we're all up against the same limit
My capacity is my limit. Therefore, my capacity isn't large enough...
"Shifting the Burden"
I have more than one limit and can't address all of them equally...
The drifting goals undermine my long-term growth...
"Tragedy of the Commons"
"Growth & Underinvestment" (fixed standards)
...but there's a temptation to let my standards slip instead...
"The Attractiveness Principle"
"Growth & Underinvestment" (drifting standards)

20 Enriching the Archetype

Once you have settled upon a promising archetype, it still remains to convert your understanding to strategy. Where do you intervene? How do you redesign or reengineer the system? How do you move from your diagnosis to a prescription? Moreover, if you can implement your strategy so that your understanding (and ability to understand) continues to increase, then you don't have to worry about "getting it all right" at the start.

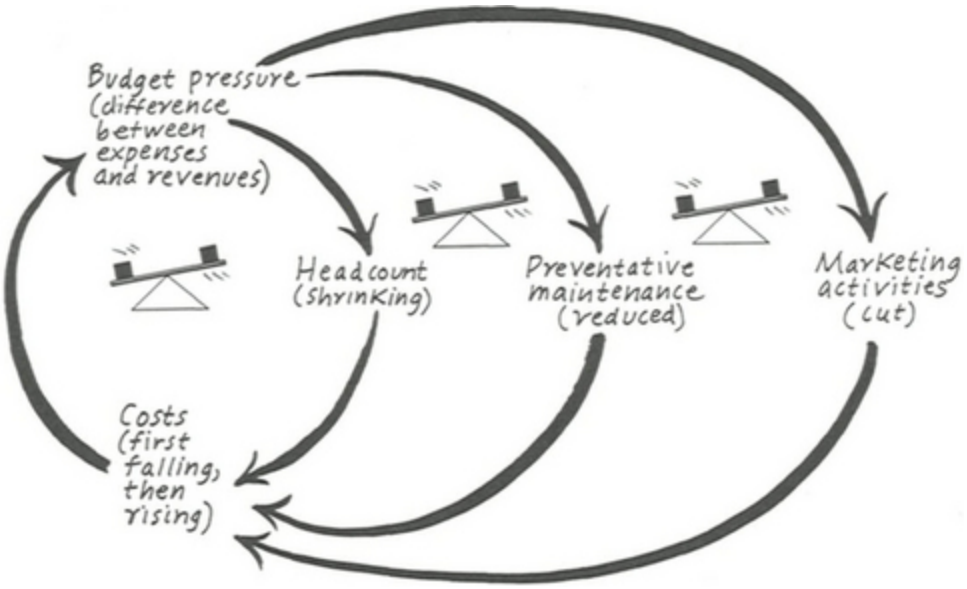
We call this the "enriching" stage. In our work, it's often the point where people start to see things coming together.

Widening and deepening *Michael Goodman, Rick Karash*

CONSIDER THIS SIMPLE STORY: THE GENERAL MANAGER OF A MANUFACTURING division faces a series of budget crises. She is told to pare her facility down, to make it run "lean and mean." So she reluctantly decides to reduce her head count. She furloughs some employees and lets others go. She also reduces preventive maintenance. And she cuts back on marketing activities. Her costs go down for a little while, but then creep up again. So she reluctantly pushes harder—reducing head count a bit more, and cutting back maintenance and marketing.

If this were your story, how would you diagram it? You might conclude that the story can be represented as a simple balancing loop, in which you respond to the problem symptom of financial problems ("budget pressure") through a quick but painful fix, reducing head count, which lowers costs and eases your budget pressure.

But to be fair to the full story, you would have to add two other corrective actions: reducing preventive maintenance, and cutting back on marketing:

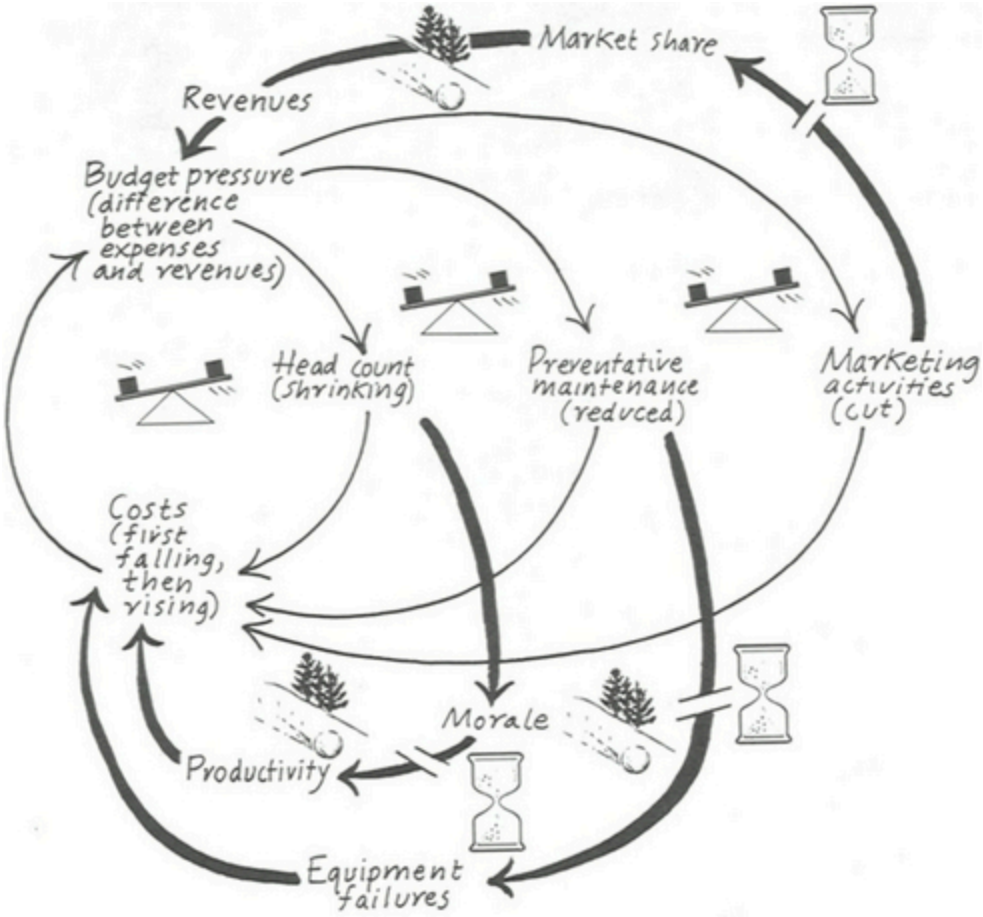


If you put them together you would have a balancing loop with three parallel activities. All of them have some effect on your costs. Adding extra loops represents your first level of enrichment, but the story is still unfinished. What are some of the unintended longer-term consequences of your actions? When you reduce head count, or change the maintenance schedule, what else is affected?

Reducing your marketing activity could impact your market share, slowing or reducing revenues and creating budget pressures. Pulling back on maintenance can lead to serious equipment failures, eventually raising costs. Head count reductions could generate morale problems and affect productivity. Eventually, costs will escalate.

In workshops, where we use this diagram as an exercise, we have seen many possible ways to diagram effects of each of those elements. In your own setting, you will find that discussions about additional loops become a productive way to jump-start inquiry about the situation. Notice that all of the secondary loops are vicious cycles, and have the opposite impact on revenues and costs than is desired.

> **In this example, we have progressed down the archetype family tree from a balancing loop to "Fixes That Backfire"; see this page and this page .**



GUIDELINES FOR WIDENING AND DEEPENING

- Start by asking: "What else is affecting this element?" Then see if you can trace those elements into your picture and make them into new loops. For example: "Budget pressures are affected by revenue. Revenue is affected by market share. What affects market share …?"
- Don't be shy about searching out and including interrelationships that were never discussed (or noticed) before. This adds high value to a team's learning process.
- It's helpful, as you add links, to test them also as "loops." Identify each new loop as "balancing" (moving toward stability) or "reinforcing" (pushing growth or decline) based only on its behavior: regardless of the number of factors or elements it contains, or its position in the diagram.

- The loops should be relevant and important to the story. Theoretically, you could keep adding potential causes and effects to any systems story, until the diagram begins to resemble a plate of spaghetti. But after a few interdependencies become apparent, your team will find itself facing the underlying question: “What theme is emerging? What are the implications of this structure? Have we moved to a new-archetype? How do we redesign this to meet our purposes? Where do we have leverage?”

Looking for mental models

Michael Goodman, Jennifer Kemeny

A N ARCHETYPE IS NOTHING MORE THAN A MENTAL MODEL MADE VISIBLE . With the archetype before them, one person says, “This is how I think it works.” Then, typically, a colleague replies, “No, that’s not how it works at all.” The team starts to recognize how both viewpoints are true; they each see different aspects of the same interrelationships. As they continue, the structure begins to reflect the collective thinking of the team. As more and more people comment, confidence grows that this archetype speaks to reality as people know it.

Even if you agree on what structure is involved, you will have varying perceptions of the implications. “We agree it’s a ‘Limits to Growth’ dynamic, but you think the constraint is our succession policy, and I think it’s our customer relations.” You may agree that the fix has backfired, but not on what to do about the undesirable consequences. But you now have a language for describing what each person sees, clarifying the differences, and building more choices (not answers) into your thinking.

ADDING THOUGHT BUBBLES

Look at the arrows between elements in your system diagram. Many arrows represent choices people are making. Add a “thought bubble,”

like a bubble in a cartoon, to indicate the thinking which leads to this choice instead of others. (See this page for an example.)

As you consider thought bubbles, avoid making your own judgments about the rationale. Simply think about the thoughts behind the links. This has led to some profound (and sometimes painful) "ah-ha's," as people realize how disconnected their thinking is from the results they have produced. For example, a group of managers asked themselves, "What thoughts compel us to jump from budget pressure to immediately cutting head count?" Their replies showed how much they were governed by knee-jerk assumptions:

"I don't have any choice."
"I'll just do this once."
"I'll manage the consequences later."

QUESTIONS TO HELP BRING OUT MENTAL MODELS

- Assume for the moment that *all* the people involved are acting reasonably and responsibly, from their point of view. What might they have been thinking that made these actions seem reasonable and responsible to them?
- What might the diagram look like from the factory manager's point of view? From the customer's? From the union president's?

> **For an exercise to help ask this question, see "Multiple Perspectives," this page .**

- What mental models do you carry that might affect how you see this diagram?
- What mental models prevent you from breaking out of this structure?

> **The mental models techniques-Ladder of Inference, Left-Hand Column, and Balancing Inquiry and Advocacy-are very useful in these "introspective" discussions. See this page .**

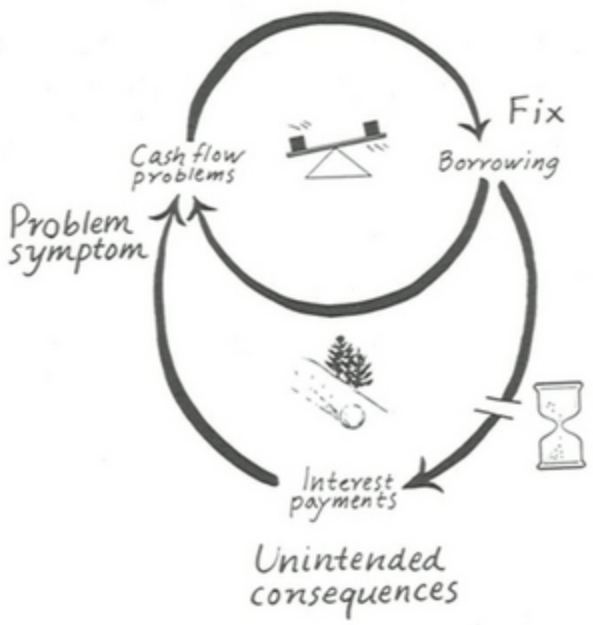
System redesigns: "adding loops" and "breaking links" *Michael Goodman, Rick Karash*

Y OU KNOW YOU ’VE FOUND A HIGH -LEVERAGE INTERVENTION WHEN YOU can see the long-term pattern of behavior shift qualitatively in a system: when, for example, stagnation gives way to growth, or oscillations dampen dramatically. This kind of breakthrough happens most readily when you can make alterations in the structure you’ve mapped out. You either add new elements and create new desirable loops, or break linkages that produce undesirable impacts.

In the real world, “adding a loop” translates into designing and implementing a new process, monitoring information in a new way, or establishing new policies. Breaking a link means eliminating or weakening undesirable consequences of your actions or ceasing strategies which are counterproductive in the long run. These are not mechanistic or arbitrary acts; before you implement them, you must run mental experiments in which you test their effects in your imagination. Also, ask yourself: Is the measure viable in the real world? Do you have the power to implement it?

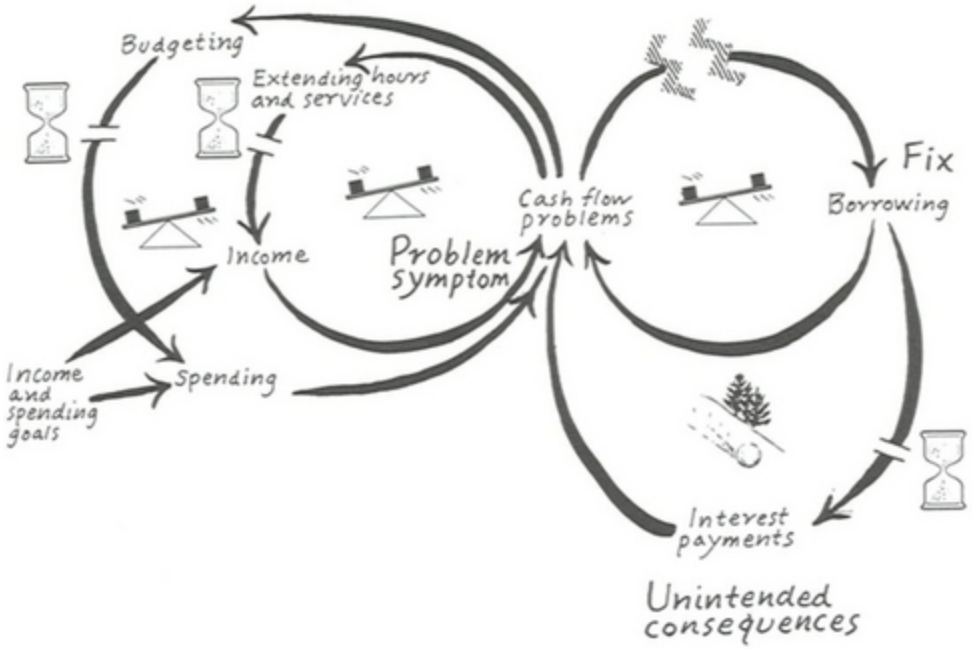
> **The ramifications may be so complex or hard to predict that you want to go to a computer model (see this page); or you may want to run prototype experiments (see this page).**

A small “Ma and Pa” lawn care company used both forms of redesign to help cope with a spiraling debt problem. Facing cash shortages, they had been forced to borrow from credit lines. Unfortunately, the fix had backfired; high interest payments on their accumulated debt pushed them into severe cash flow problems.



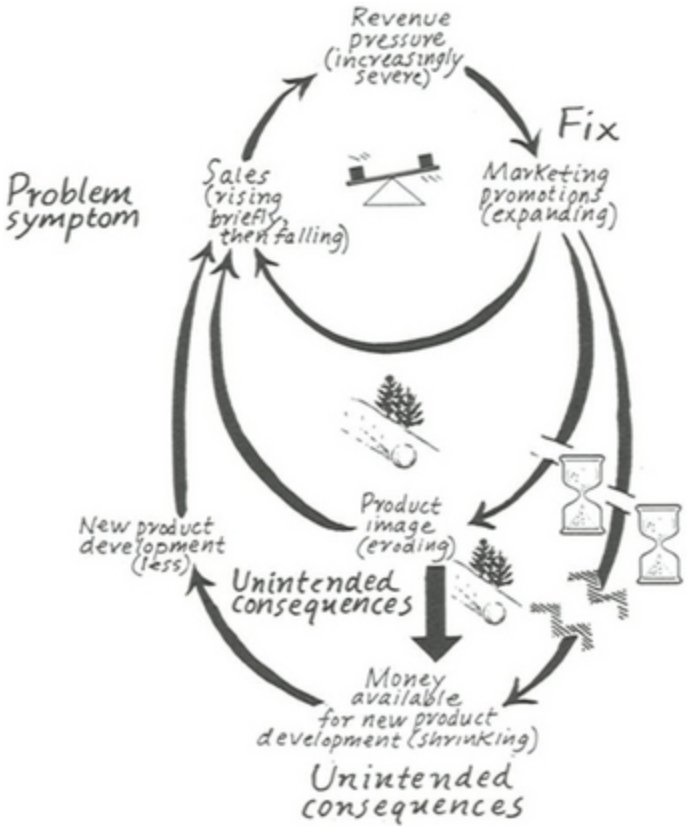
They used the “Fixes That Backfire” archetype to look for ways out. Slowing or eliminating borrowing would have been ideal, but nearly impossible. Therefore, they needed to focus attention on the sources of the problem: low income and high spending. They conceived of these new measures as two new balancing loops.

They tightened their budget, invested in better financial management software, extended their hours, and started offering additional services, such as pool maintenance. These measures worked in real life only because they committed themselves to clear goals for their spending and income, and allowed themselves realistic time delay expectations.



If you turn the diagram (bottom of this page) on its side, you'll see that what started as a "Fix That Backfired" was in fact a "Shifting the Burden" system. This revealed the need to focus efforts on the fundamental problem-correcting process (the left-hand side of the diagram).

At the same time, they weakened the link between cash flow problems and borrowing, by setting (and following) a policy of borrowing less and postponing new borrowing whenever possible. They had to give up the mental model that "buying now, paying later," was workable. When you add loops or break links, it's critical to try to make such mental models explicit, because the reasons underlying peoples' actions are fundamental to the system's structure.



In an article in *The Systems Thinker* , Daniel H. Kim described another "breaking links and adding loops" case. A consumer manufacturing company was caught in a "Fix That Backfired" over marketing promotions and rebates. The more promotions increased, the more the company diverted resources from new product development and the more it tarnished its product image. The resulting sales drop increased the pressure for more marketing promotions. Finally, a systems thinking effort suggested breaking the link from "marketing promotions" to "money available for new product development": setting a policy that no matter how high the perceived need, promotions would not be funded out of the product development budget. *

***Seven Steps for Using 'Fixes That Backfire' to Get Off a 'Problem-Solving Treadmill,' " by Daniel H. Kim, *The Systems Thinker* , September 1992, p. 5.**

Another suggestion was made to add a link between “erosion of product image” and “money available for new product development.” This would mean building channels so that market information passed quickly to research and development, and making sure that new product development was funded only if it was informed by the customer data coming in from marketing.

Prototyping your implementation *Jennifer Kemeny*

I GET NERVOUS WHEN , AFTER FINISHING A CAUSAL LOOP DIAGRAM , TEAM members say, “Now, we understand the system.” All you have done so far, I want to tell them, is codify your group intuition. You have created hypotheses about what has happened, and where opportunities for leverage might exist.

Before committing yourself to any large-scale actions, run several small, relatively self-contained experiments. With a bit of ingenuity, you can pick out ahead of time a few early indicators of success. If you changed the system successfully, what new patterns of behavior would you expect to see? Financial indicators—the way corporations normally measure success—tend to be useless here. By the time a system dynamic has affected finances, the dynamic is already entrenched. But chances are, your archetype structure already contains clues to more appropriate indicators. Ask yourself: If the intervention works, what elements of the archetype will change first, and how might they change?

For example, I recently worked with a circuit board manufacturer with severe financial woes, despite high sales rates. Circuit board manufacturing is typically a two-step process; before they win a contract to make a new chip, manufacturers must construct a prototype for the prospective client—a loss leader, at a high per-unit cost. It turned out that only a small percentage of this manufacturer’s customers chose to follow their prototype with a full production run. This statistic (the percentage of prototypes leading to full production) would be an ideal indicator, but it had never been separated out in the

financial statement. It only emerged from asking a question in a systemic context: “If profits are your problem, then where do your profits come from?”

If you can perform this technique, it does not matter whether you have come up with the “right” systemic archetype. In fact, even if your systemic understanding is completely wrong, if you are willing to take action and reflect on your action, you will be able to act consistently and make genuine improvements.

THE BREAKTHROUGH STRATEGY **by Robert H. Schaffer**
(1988, New York: Harper Business).

Robert H. Schaffer’s book is about picking the right pilot projects for large system change. He has some very convincing stories and useful criteria. For example, pick indicators that show results in a few months, not two years down the road. Look for experiments which don’t need more resources thrown in.—**JK**