What is systems thinking?
Systems thinking offers a powerful new perspective, a specialized language, and a set of tools that can be used in everyday life and work. Systems thinking is a way of understanding reality that emphasizes the relationships among a system's parts, rather than the parts themselves.

Why Is systems thinking important?
Systems thinking can help you

- design smart, enduring solutions to problems,
- achieve meaningful outcomes
- create desired futures

In its simplest sense, systems thinking gives you a more accurate picture of reality, so that you can work with a system's natural forces in order to achieve the results you desire. It also encourages you to think with an eye toward the long view—for example, how might a particular strategy you're considering play out over the long run? And what unintended consequences might it have? Finally, systems thinking is founded on some basic, universal principles that you will begin to detect in all arenas of life once you learn to recognize them (see Habits of a Systems Thinker).

What are systems?
A system is a group of interacting, interrelated, and interdependent components that form a complex and unified whole. Systems are everywhere—for example, the R&D department in your organization, the circulatory system in your body, the predator/prey relationships in nature, the ignition system in your car, and so on. Ecological systems and human social systems are living systems; human-made systems such as cars and washing machines are nonliving systems. Most systems thinkers focus their attention on living systems, especially human social systems. However, many systems thinkers are also interested in how human social systems affect the larger ecological systems in our planet.

Systems thinking as a perspective:
Events, patterns, or system?
Systems thinking is a perspective because it helps us see the events and patterns in our lives in a new light—and respond to them in higher leverage ways. For example, suppose a fire breaks out in your city. This is an **event**. If you respond to it simply by putting the fire out, you're reacting. (That is, you have done nothing to prevent new fires.) If you respond by putting out the fire and studying where fires tend to break out in your city, you'd be paying attention to **patterns**. For example, you might notice that certain neighborhoods seem to suffer more fires than others. If you locate more fire stations in those areas, you're adapting. (You still haven't done anything to prevent new fires.) Now suppose you look for the **systems**—such as smoke detector distribution and building materials used—that influence the patterns of neighborhood-fire outbreaks. If you build new fire-alarm systems and establish fire and safety codes, you're creating change. Finally, you're doing something to prevent new fires!

Systems thinking as a special language
As a language, systems thinking has unique qualities that help you communicate with others about the many systems around and within us:

• It emphasizes wholes rather than a focus on parts, and stresses the role of interconnections—including the role we each play in the systems at work in our lives.
• It emphasizes circular feedback (for example, A leads to B, which leads to C, which leads back to A) rather than linear cause and effect (A leads to B, which leads to C, which leads to D, . . . and so on).
• It contains special terminology that describes system behavior, such as reinforcing process (a feedback flow that generates exponential growth or collapse) and balancing process (a feedback flow that controls change and helps a system maintain stability).

S**ystems thinking as a set of tools**
The field of systems thinking has generated a broad array of tools that let you
(1) Graphically depict your understanding of a particular system's structure and behavior,
(2) Communicate with others about your understandings, and
(3) Design high-leverage interventions for desirable system behavior.

These tools include causal loops, behavior over time graphs, stock and flow diagrams, and systems archetypes—all of which let you depict your understanding of a system—to computer simulation models and management "flight simulators," which help you to test the potential impact of your interventions.

• • •

Whether you consider systems thinking mostly a new perspective, a special language, or a set of tools, it has a power and a potential that, once you've been introduced, are hard to resist. The more you learn about this intriguing field, the more you'll want to know!

The Ladder of Inference by Rick Ross

We live in a world of self-generating beliefs which remain largely untested. We adopt those beliefs because they are based on conclusions, which are inferred from what we observe, plus our past experience. Our ability to achieve the results we truly desire is eroded by our feelings that:

- Our beliefs are the truth.
- The truth is obvious.
- Our beliefs are based on real data.
- The data we select are the real data.

For example: I am standing before the executive team, making a presentation. They all seem engaged and alert, except for Larry, at the end of the table, who seems bored out of his mind. He turns his dark, morose eyes away from me and puts his hand to his mouth. He doesn't ask any questions until I'm almost done, when he breaks in: "I think we should ask for a full report." In this culture, that typically means, "Let's move on." Everyone starts to shuffle their papers and put their notes away. Larry obviously thinks that I'm incompetent -- which is a shame, because these ideas are exactly what his department needs. Now that I think of it, he's never liked my ideas. Clearly, Larry is a power-hungry jerk. By the time I've returned to my seat, I've made a decision: I'm not going to include anything in my report that Larry can use. He wouldn't read it, or, worse still, he'd just use it against me. It's too bad I have an enemy who's so prominent in the company.

In those few seconds before I take my seat, I have climbed up what Chris Argyris calls **a "ladder of inference,"** -- a common mental pathway of increasing abstraction, often leading to misguided beliefs:

- I started with the observable data: Larry's comment, which is so self- evident that it would show up on a videotape recorder . . .
- . . . I selected some details about Larry's behaviour: his glance away from me and apparent yawn. (I didn't notice him listening intently one moment before) . . .
- . . . I added some meanings of my own, based on the culture around me (that Larry wanted me to finish up) . . .
- . . . I moved rapidly up to assumptions about Larry's current state (he's bored) . . .
- . . . and I concluded that Larry, in general, thinks I'm incompetent. In fact, I now believe that Larry (and probably everyone whom I associate with Larry) is dangerously opposed to me . . .
- . . . thus, as I reach the top of the ladder, I'm plotting against him.

It all seems so reasonable, and it happens so quickly, that I'm not even aware I've done it. Moreover, all the rungs of the ladder take place in my head. The only parts visible to anyone else are the directly observable data at the bottom, and my own decision to take

action at the top. The rest of the trip, the ladder where I spend most of my time, is unseen, unquestioned, not considered fit for discussion, and enormously abstract. (These leaps up the ladder are sometimes called **"leaps of abstraction**.")
I've probably leaped up that ladder of inference many times before. The more I believe that Larry is an evil guy, the more I reinforce my tendency to notice his malevolent behaviour in the future. This phenomenon is known as the "reflexive loop": our beliefs influence what data we select next time. And there is a counterpart reflexive loop in Larry's mind: as he reacts to my strangely antagonistic behaviour, he's probably jumping up some rungs on his own ladder. For no apparent reason, before too long, we could find ourselves becoming bitter enemies.

Larry might indeed have been bored by my presentation -- or he might have been eager to read the report on paper. He might think I'm incompetent, he might be shy, or he might be afraid to embarrass me. More likely than not, he has inferred that I think he's incompetent. We can't know, until we find a way to check our conclusions. Page 2

Unfortunately, assumptions and conclusions are particularly difficult to test. For instance, suppose I wanted to find out if Larry really thought I was incompetent. I would have to pull him aside and ask him, "Larry, do you think I'm an idiot?" Even if I could find a way to phrase the question, how could I believe the answer? Would I answer him honestly? No, I'd tell him I thought he was a terrific colleague, while privately thinking worse of him for asking me.

Now imagine me, Larry, and three others in a senior management team, with our untested assumptions and beliefs. When we meet to deal with a concrete problem, the air is filled with misunderstandings, communication breakdowns, and feeble compromises. Thus, while our individual IQs average 140, our team has a collective IQ of 85.

The ladder of inference explains why most people don't usually remember where their deepest attitudes came from. The data is long since lost to memory, after years of inferential leaps.

Using the Ladder of Inference

You can't live your life without adding meaning or drawing conclusions. It would be an inefficient, tedious way to live. But you can improve your communications through reflection, and by using the ladder of inference in three ways:

- Becoming **more aware** of your own thinking and reasoning (reflection);
- Making your thinking and reasoning **more visible** to others (advocacy);
- **Inquiring** into others' thinking and reasoning (inquiry).

Once Larry and I understand the concepts behind the "ladder of inference," we have a safe way to stop a conversation in its tracks and ask several questions:

- What is the observable data behind that statement?
- Does everyone agree on what the data is?
- Can you run me through your reasoning?

- How did we get from that data to these abstract assumptions?
- When you said "[your inference]," did you mean "[my interpretation of it]"?

I can ask for data in an open-ended way: "Larry, what was your reaction to this presentation?" I can test my assumptions: "Larry, are you bored?" Or I can simply test the observable data: "You've been quiet, Larry." To which he might reply: "Yeah, I'm taking notes; I love this stuff."

Note that I don't say, "Larry, I think you've moved way up the ladder of inference. Here's what you need to do to get down." The point of this method is not to nail Larry (or even to diagnose Larry), but to make our thinking processes visible, to see what the differences are in our perceptions and what we have in common. (You might say, "I notice I'm moving up the ladder of inference, and maybe we all are. What's the data here?")

This type of conversation is not easy. For example, as Chris Argyris cautions people, when a fact seems especially self-evident, be careful. If your manner suggests that it must be equally self-evident to everyone else, you may cut off the chance to test it. A fact, no matter how obvious it seems, isn't really substantiated until it's verified independently -- by more than one person's observation, or by a technological record (a tape recording or photograph).

Embedded into team practice, the ladder becomes a very healthy tool. There's something exhilarating about showing other people the links of your reasoning. They may or may not agree with you, but they can see how you got there. And you're often surprised yourself to see how you got there, once you trace out the links.

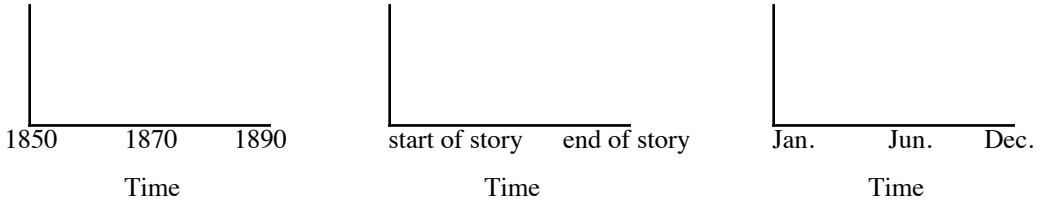
Tips for Behavior-Over-Time Graphs (BOTGs)

Behavior-Over-Time Graphs (BOTGs): A BOTG is a simple tool that can help people focus on patterns of change over time rather than on isolated events, leading to rich discussions on how and why something is changing. BOTGs focus on trends.

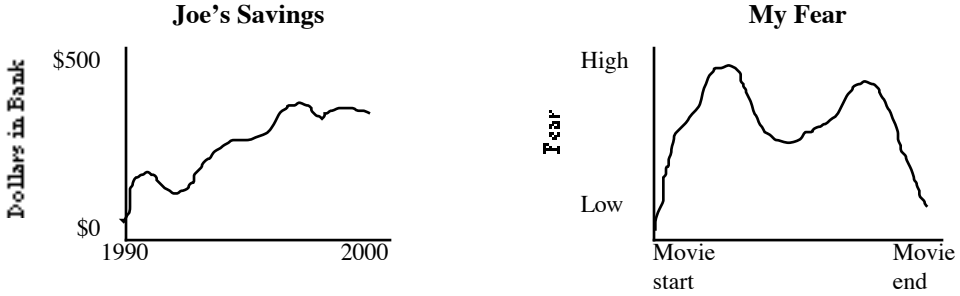
1. A BOTG is a basic line graph showing the trend, or pattern of change, of a variable over time.

2. The X axis:
   - is **always** labeled in units of time or can reflect change in time.
   - has defined beginning and ending points; the precision of the definition can meet your specific purpose.

   Care should be taken to explain the logic for the time scale. Why does it start and end where it does? Examination of when and where a particular pattern of behavior starts, ends, or changes direction is also important.



3. The Y axis:
   - clearly identifies the variable being graphed and **must** be labeled with that variable's name.
   - should not include qualitative words such as more, less, increasing, bigger, etc., in the variable's name; for example, it's difficult to understand "more fear" decreasing over time.
   - may represent "concrete" variables (quantities such as population or temperature) or "abstract" variables (like love or stress).
   - must have a defined scale. Scales can be numeric (e.g., 2 to 1000 rabbits or "on a scale of 0 to 100…") or descriptive (e.g., low vs. high).



4. Different interpretations of the behavior of the variable are definitely possible. Both similarities and differences among graphs are grounds for rich discussion about individual interpretations or mental models.

5. More than one variable can be plotted on the same graph to compare them for possible interdependence or causal relationships between variables. Differentiate between the lines with careful labeling or the inclusion of a key. This step can contribute to thought-provoking discussion.

Tips for Causal Loop Diagrams (CLDs)

Causal Loop Diagrams (CLDs) help one understand and communicate the interactions that determine the dynamics of a system. System behaviors are generated from within the system and are the result of one or more causal (or feedback) loops. CLDs illustrate how "structure generates behavior" within a system.

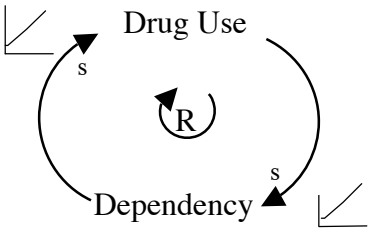
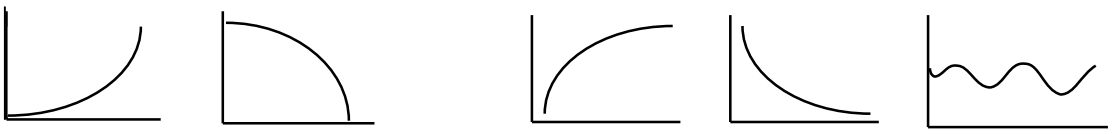


Figure 1

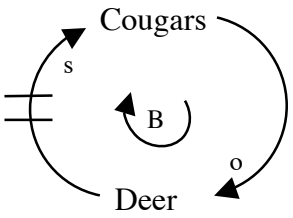
1. CLDs show causal relationships and illustrate circular feedback within a system. *A cause becomes an effect, becomes a cause*. You should be able to read around the loop several times. *"What goes around comes around."*
2. You may choose to identify important CLDs by looking for causal relationships among behavior-over-time graphs (BOTGs) that describe the system or by extracting those found within Stock/Flow maps and computer simulations.

   Since CLDs are about the causes of change, it is helpful to identify how key elements actually did change by drawing accompanying BOTGs (See Fig. 1: As drug use goes up, dependency goes up; as dependency goes up, drug use goes up.)
3. Find a specific focus for the loop(s) you draw, taking into account the purpose and audience for the loop(s). A CLD can help you tell a story or express your interpretation or mental model of how a system works. A single, understandable CLD can describe a simple system or a part of a more complex one.
   Pick one aspect of the system. Focus on a behavior that is changing over time. What are the causes? What are the effects? This/these become the other aspects of the loop(s).
4. CLDs contain 4 elements (See Fig. 1):
   a. variables that are related in cause/effect sequence(s) (See #5 below.)
   b. arrows that indicate which elements are affecting other elements
   c. symbols associated with the arrows that denote the direction of the influence of the relationships (See #6 below.)
   d. a central symbol indicating the overall identity of the loop (either "R" reinforcing or "B" balancing) (See #7 below.)
5. All variables in a CLD must be able to increase or decrease; at least one must be a stock, i.e. an accumulation. (See "Tips for Stock/Flow Maps.")
   a. Choose precise, non-repetitive terms for the variables in CLDs, e.g., "Feelings" is too nebulous a term to include in a loop. Try a more specific feeling such as "happiness," "sadness," or "frustration" instead.
   b. Do not use words such as more/less, or increases/decreases in the variable name. It is very hard to interpret less "more drug use" or more "less drug use."
6. Symbols associated with the arrowhead end of each arrow indicate the effect of the influence.
   a. An "S" means that both variables move in the same direction. If the first variable increases, the second variable will be greater than it would have been otherwise; a decrease in the first causes the second to be less than it would have otherwise been. A "+" may be used in a similar although not identical fashion.*
   b. An "O" shows that the two variables change in the opposite direction. If the first variable increases, the second will be less than it would have been otherwise; a decrease in the first variable causes the second to be greater than it would have been otherwise. A "-" may be used in a similar, although not identical, fashion. *For clarification of the difference between "S" and "+" and "O" and "-," refer to writings by John Sterman and/or George Richardson.
7. A CLD may be "reinforcing" and grow, or shrink, until acted upon by a limiting force, or "balancing" and move toward, return to, or oscillate around a particular condition. Reinforcing loops are marked with an "R" in the center; balancing loops are indicated with a "B" in the center . *Graphs of behaviors from:*

Reinforcing Loops *Balancing Loops*



8. If there is a significant amount of time between the action of one variable and the reaction of the next variable in the loop, a time delay can be indicated by drawing two short, parallel line segments across the arrow that connects those two variables.



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THE SYSTEMS THINKER™
Building Shared Understanding

What Is Your Organization's Core Theory of Success?

by Daniel H. Kim

Managers in today's organizations are continually confronted with new challenges and increased performance expectations. At the same time, they are bombarded by a bewildering array of management ideas, tools, and methods that promise to help them solve their organizational problems and improve overall performance. Desperate to find solutions to intractable problems, beleaguered managers may succumb to the lure of new techniques and approaches that promise easy answers to tough issues. When they try the latest management fad, however, they find that the relief is only temporary; the same issues resurface later, perhaps in another part of the organization.

Managers often don't have the time, perspective, or framework to learn from the successes and failures of their problem-solving efforts. As a result, organizations fall into a recurring pattern of temporary relief followed by a return of the same problems. If people do attempt to learn from the past, they frequently find themselves ill-prepared to make sense of their own experience. Even in cases where the solutions produce lasting results, managers often lack an understanding of *why* these approaches succeeded.

Limitations of Traditional Approaches

When attempting to determine why an initiative succeeded, most managers talk in terms of the individual factors they believe were critical to the success. This propensity to focus on factors in isolation rather than seeing them as interrelated sets is part of what Barry Richmond refers to as "traditional business thinking" ("The 'Thinking' in Systems Thinking: How Can We Make It Easier to Master?" March 1997). Indeed, many companies formulate their thinking about success as lists of important attributes or competencies, without identifying the key ways in which the items are connected.

For example, companies often begin their efforts to improve their organizations by listing critical success factors. They identify a goal (for example, industry leadership) and then list the factors that management agrees are essential to achieving this goal (such as desirable products and services, ability

Continued on next page

Inside

PEGASUS COMMUNICATIONS

A Core Theory of Success

As the quality of relationships rises, the quality of thinking improves, leading to an increase in the quality of actions and results. Achieving high-quality results has a positive effect on the quality of relationships, creating a reinforcing engine of success.

Continued from previous page

to deliver). They then prioritize the items on the list and assign the top priorities to special teams.

This list-based approach poses several problems. First, people frequently treat the factors separately, in a "divide and conquer" strategy. The danger here is that they may not properly consider important *interactions* among the different factors. Hence, a marketing department may not warn manufacturing and customer service about the potential impact of a major marketing campaign.

Another problem is that if management reduces the initial investments after a key success factor (KSF) has reached a certain desired level, the success may prove temporary. Often, when we have achieved a certain desired level with KSF1, we declare victory and shift resources over to KSF2. As we build up KSF2 and then KSF3, KSF1 starts to deteriorate because of lack of continued investments. So, we shift some resources back to KSF1 as we declare victory on KSF2 and KSF3.

Unless managers develop a theory of how these factors are interrelated in creating ongoing success (or failure), they cannot put the data from their experiences together in a way that serves as a guide for future actions. Unfortunately, most approaches to helping organizations solve persistent problems focus on applying other people's theories and methods to the organization and not on developing a specific theory about the organization's own operations. Systems thinking and organizational learning can offer tools and methods for companies to begin developing such theories and for putting them into action.

The Importance of Theory

Regrettably, the corporate world has little appreciation for the importance and power of theory. Many managers associate theory with universities and research institutions, which they view as too insulated from the real world. Hence, managers often dismiss theory as too academic and irrelevant to the pragmatic conduct of business. But the American Heritage Dictionary, Standard Edition, defines theory as "*systematically organized knowledge applicable in a relatively wide variety of circumstances, especially a system of assumptions, accepted principles, and rules of procedure devised to analyze, predict, or otherwise explain the nature or behavior of a specified set of phenomena.*" This definition clearly shows that there is nothing strictly academic about the concept of theory at all.

Using this definition of theory, we can say that creating a long-lived, successful organization means managers must develop systematically organized knowledge that represents the system of assumptions, accepted principles, and procedural rules they use to make sense of their past experience and to predict the future. In this sense, theory-building is about developing a better understanding of our organizations and improving our capacity to predict the future. In other words, theory-building has *everything* to do with running a successful business.

We have to be cautious when we use the word "prediction," because it tends to be used synonymously with the word "forecast." Forecasting attempts to provide a specific kind of prediction; however, it usually focuses on calculating specific numerical data that we expect to occur at some point in the future. The main criterion of success for forecasts is the accuracy of the forecasted result, not the accuracy of the assumptions or the methods used to produce it.

When we talk about predictions based on theory, however, we are more interested in the accuracy of the underlying assumptions and less in the numerical accuracy of the predicted result. Why? Because, in a complex world that is inherently unforecastable (a basic tenet in the emerging science of *chaos*), only understanding interrelationships can guide us in making the course corrections inevitably required in an environment of rapid and continual change. All good theories therefore help provide guidance by increasing our predictive power about the future.

Theory-Building: Shifting from Factors to Loops

So, responsible leaders should ask themselves, "What good theories do we have that provide practical guidance for ensuring our organization's future success?" The more clearly you can articulate your organization's theories about what leads to success, the more deliberate you can be about investing in the elements that are crit-

The Systems Thinker™

Managing Editor: Janice Molloy
janicem@pegasuscom.com
Editors: Laurie Johnson, Kellie Wardman O'Reilly
Publisher: Daniel H. Kim
Production: Karla M. Tolbert
Circulation: Louise Corcoran

Advisory Board: Bill Dalton, *Pugh-Roberts Associates*; Will Glass-Husain, *MicroWorlds*; Michael Goodman, *Innovation Associates*; David Kreutzer, *GKA Incorporated*

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The Systems Thinker™ explores both the theory and practice of the learning organization, with particular emphasis on systems thinking as the cornerstone of the five disciplines (as outlined by Peter Senge in *The Fifth Discipline*). Articles by leading thinkers and practitioners articulate the challenges and issues involved in creating learning organizations. We encourage dialogue about systemic issues and strive to provide a forum for debating such issues. Unsolicited articles and stories are welcome.

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Editorial and Business Address:
Pegasus Communications, Inc.
PO Box 120 Kendall Sq., Cambridge, MA 02142
Phone (617) 576-1231 • Fax (617) 576-3114
http://www.pegasuscom.com

ical to that success. From a systems thinking perspective, having a core theory of success means moving beyond identifying individual success factors to seeing the linkages that create the reinforcing engines of success within the organization.

For example, once we have a list of key success factors, we can take the next step of identifying how each KSF is connected to a reinforcing loop (see "Shifting to a Loop Perspective"). The key success loop (KSL) identified in our example shows that by increasing desirable products and services, we increase sales revenues and boost the amount of money available for investment. With more money to invest, we can draw more technical talent and produce even more desirable products and services (R loop).

Shifting our formulation of theories from factors to loops is important for several reasons. First, it forces us to think through the logical chain of causal forces that ensure that the KSF becomes self-sustaining. Second, it shifts our emphasis away from the factor itself to the broader set of interrelationships in which it is embedded. Third, by mapping each of our KSFs into Key Success Loops, we are more likely to see the interconnections among all the KSFs. This approach requires shifting our worldview from one that sees *factors* as the lowest unit of analysis to one that recognizes *loops* as the basic building blocks of organizational systems.

Theory as an Intervention Guide

Having an explicit theory of success allows an organization to continually test the impact of planned actions and assess whether these actions are having a net positive or negative effect on the company's overall success. So what might a theory of success look like in a learning organization?

One such core theory of success would be based on the premise that as the quality of the relationships among people who work together increases high team spirit, mutual respect, and trust), the quality of thinking improves (consider more facets of an issue and share a greater number of different perspectives) (see "A Core Theory of Success," p. 1). When the level of thinking is heightened, the quality of actions is also likely to improve (better planning, greater coordination, and higher commitment). In turn, the quality of results increases as well. Achieving high-quality results as a team generally has a positive effect on the quality of relationships, thus creating a virtuous cycle of better and better results.

The most important point about this kind of systemic theory is that success is not derived from any one of the individual variables that make up the loop, but rather *from the loop itself*. All of the variables are important for the theory to work properly, because if one of them isn't functioning, the reinforcing process doesn't exist. If we believe that this loop describes a relevant theory of success for our organization, it forces us to pay attention to how *all* the variables are doing and how each is affecting the others in the loop.

As an example, we can use this Core Theory of Success to trace the

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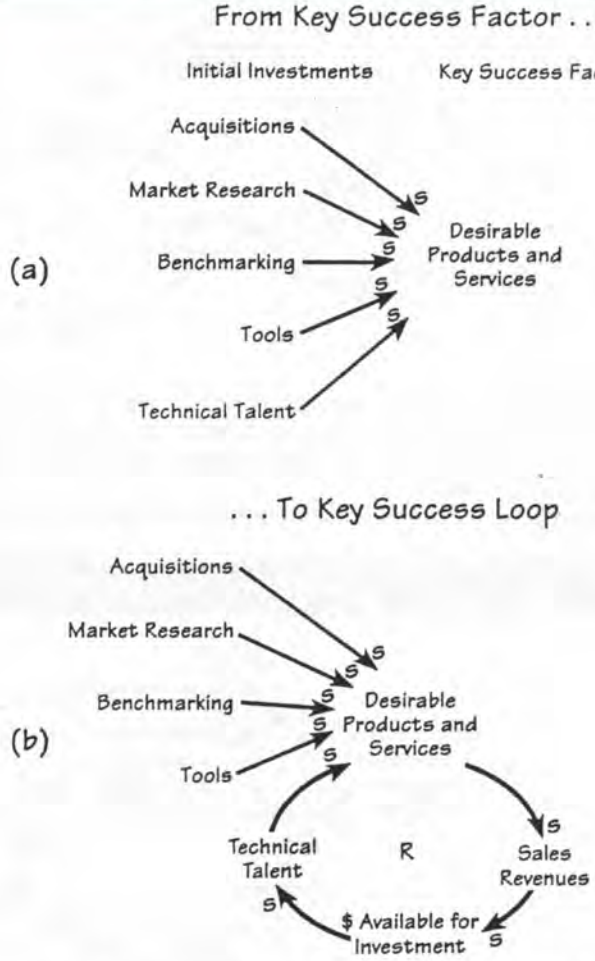
Shifting to a Loop Perspective



A key success factor is connected to a reinforcing loop. Here, as the number of desirable products and services increases, sales revenues and money for investment rise. As investments are made to increase technical talent, the ability to produce even more desirable products and services increases.

Continued from previous page

implications of a common occurrence in corporations—top-down organizational efforts to get quick, short-term results. When results fall short of expectations, management often "helps" the people below by undertaking efforts intended to improve the bottom line immediately (see "Applying the Accelerator and the Brakes"). The "accelerator" (say, downsizing) works and improves the quality of results we are looking for (better profit picture). But those same actions can also serve as "brakes," or unintended consequences that counteract any beneficial actions. These actions can destroy the quality of relationships by creating mistrust and low morale, and thus ultimately decrease the quality of results. The end result may be a lot of wasted energy with no real improvement in overall results.

Without having a core theory, we might simply focus on the "accelerator" aspect of the intervention and declare victory when the results improve in the short term. We wouldn't necessarily connect the long-term negative consequences of the "braking" action to the original intervention. When the results deteriorate again, the pressure to improve results increases. We might respond by repeating the same efforts that we believe worked so well the last time. By having the theory and the accompanying loop, on the other hand, we can see how the top-down efforts may have a negative impact and implement additional measures to counterbalance that effect.

To illustrate how this generalized accelerator-and-brakes dynamic might play out in a specific situation, let's look at an example. Curtis Nelson, president and CEO of Carlson Hospitality Worldwide (the parent company of Radisson Hotels), wrote in their company magazine: "Take care of your people, inspire them, allow them to grow to their full potential and evoke their personality, and they will reach a higher level of job satisfaction. That in turn inspires greater commitment, which leads to greater guest satisfaction."

Although Nelson did not draw a loop in his article, he articulated in words his core theory of success for this hotel and cruise business (see "Hotel Core Success Loop"). The diagram shows that investments in people's potential enhances job satisfaction, which builds commitment and translates into higher guest satisfaction and higher revenues. An increase in revenues means a rise in profits, which leads to more investments in people.

Now, suppose something unexpected happens to decrease profits, such as a rise in airfares that reduces business travel. Top management might respond by calling for cost-cutting measures to improve the profit picture. In the short term, profits are likely to rise—the intended result. However, an unintended consequence of enacting such measures may be substantial decreases in the company's investment in its people, leading to a decrease in job satisfaction. This decrease in job satisfaction will reduce profits in the

Applying the Accelerator and the Brakes

Management often undertakes efforts to get quick results. This "accelerator" improves the quality of results over the short term. But those same actions can also serve as "brakes" by destroying the quality of relationships and ultimately decreasing the quality of results.

Hotel Core Success Loop

Investment in people enhances job satisfaction and commitment, leading to higher guest satisfaction, revenues, and profits. Cost-cutting measures may cause profits to rise in the short term but fall over the long term, as employee commitment, customer satisfaction, and revenues decline.

longer term, because employees will be less committed, causing a decline in customer satisfaction. Lower profits would then provoke another wave of cost cutting, repeating the accelerator-and-brakes dynamic. In this way, a one-time disturbance from the outside can trigger an internal response that keeps cycling for a long time.

Again, by articulating our core theory of success, we will be more likely to pay attention to both the short-term and the long-term consequences of our actions. In particular, our theory can prevent us from inadvertently undermining the very loop we depend on for our success.

Of course, in a real company setting, a core theory of success is likely to involve many loops, not just one. The various loops will be interconnected in many ways, and their dynamic behavior will not always be intuitively obvious. Building and understanding such theories requires more than a one-time investment in creating a quick overview map (like the ones in this article); it requires a shift in mindset that values theory-building as a vital ongoing activity of the organization.

Managers as Researchers and Theory-Builders

But in order to survive and thrive in the emerging economic order, organizations must focus on producing long-term, sustainable results. Managers at every level need a broader perspective—a theory—of how their organization can create and maintain success. Theory-building can no longer be seen as a separate activity from the practice of management—it must become an integral part of a manager's job. Managers must take on new roles as researchers and theory-builders, which will require investment in the development of new skills and capabilities (see "Applying the Disciplines of the Learning Organization"). Just as we currently depend on accountants and financial statements to help us manage our complex enterprises, there may come a time when we will depend on our theory-builders and organizational maps and models to navigate the turbulent waters of tomorrow's business environment.

Applying the Disciplines of the Learning Organization

Applying the five disciplines of the learning organization (The Fifth Discipline, *Doubleday, 1990*) *can help improve the quality of each of the elements in a company's core theory of success. Although the diagram depicts each discipline as corresponding to only one of the elements in the loop, in practice each of the disciplines affects more than one element, and they also influence one another.*

Communicating: Team Learning

Improving communication skills usually means learning better ways of "telling." Team learning is about developing full, open, and multiple channels for communication by balancing discussion with dialogue and advocacy with inquiry. Engaging in dialogue allows team members to express their perspectives more freely and honestly. Such authentic conversations engender greater mutual respect and trust and a higher quality of relationships.

Reflecting: Mental Models

The concept of mental models helps leaders become aware of habits of thought that may get in the way of their desired results. By engaging in self-reflection, managers can break defensive routines that can keep an organization trapped in unproductive behaviors, and hence can greatly improve a team's quality of thinking.

Planning: Systems Thinking

Good planning requires a deep understanding of the underlying structures that govern an organization's behavior. Systems thinking provides a powerful array of tools that can help managers model those underlying structures and run multiple scenarios to find the most robust plan of action.

Visioning: Personal Mastery and Shared Vision

Visioning skills are helpful in developing the capacity to paint a picture of the results you want to create. The disciplines of personal mastery and shared vision help people identify what they really care about. This identification is important, because when you are clear about the result and you care about it, you are much more likely to commit yourself to making it happen.

Daniel H. Kim is a co-founder of Pegasus Communications, Inc., and a co-founder of the MIT Center for Organizational Learning.

The Different Drum
Scott Peck, 1987

Stages of Community

Pseudocommunity: In pseudocommunity a group attempts to purchase community cheaply by pretense … It is an unconscious, gentle process whereby people who want to be loving attempt to be so by telling little white lies, by withholding some of the truth about themselves and their feelings in order to avoid conflict … the essential dynamic of pseudocommunity is conflict-avoidance … The basic pretense of pseudocommunity is the denial of individual differences.

Chaos: Chaos is not just a state, but an essential part of the process … In the stage of chaos individual differences are right out in the open. Only now, instead of trying to hide or ignore them, the group is attempting to obliterate them … The stage of chaos is a time of fighting and struggle … The predominant feeling an observer is likely to have in response to a group in a chaotic stage of development is despair. The struggle is going nowhere, accomplishing nothing. It is no fun … Since chaos is unpleasant, it is common for the members of a group in this stage to attack not only each other but also their leader … In some cases chaos results from a general lack of direction. The chaos could easily be circumvented by an authoritarian leader—a dictator—who assigned them specific tasks and goals. The only problem is that a group led by a dictator is not, and never can be a community. Community and totalitarianism are incompatible.

Emptiness: Emptiness is the most crucial stage of community development. It is the bridge between chaos and community. It is necessary to empty out the barriers of communication. This might entail feelings, assumptions, ideas, motives. The following barriers tend to be the most powerful and common: expectations and preconceptions; prejudices, ideology, theology, and solutions; the need to heal, convert, fix or solve; and the need to control … The community is always something more than the sum total of the individuals present. Pseudocommunity, chaos and emptiness are not so much individual stages as group stages. The transformation of a group from a collection of individuals into genuine community requires little deaths in many of those individuals. But it is also a process of group death, group dying.

Community: In this final stage a soft quietness descends. It is a kind of peace. This is a joyful stage. People are wiling and eager to share their deepest thoughts or feelings. There is no uneasiness in silence during group dialog … Community maintenance requires that multiple major decisions be made or remade over extensive periods of time. The community will frequently fall back into chaos or even pseudocommunity in the process. Over and over again it will need to do the agonizing work of re-emptying itself.