SYSTEMS THINKING: WHAT, WHY, WHEN, WHERE, AND HOW?

BY MICHAEL GOODMAN

If you're reading *The Systems Thinker*®, you probably have at least a general sense of the benefits of applying systems thinking in the workplace. But even if you're intrigued by the possibility of looking at business problems in new ways, you may not know how to go about actually using these principles and tools. The following tips are designed to get you started, whether you're trying to introduce systems thinking in your company or attempting to implement the tools in an organization that already supports this approach.

What Does Systems Thinking Involve?

It's important to remember that the term "systems thinking" can mean different things to different people. The discipline of systems thinking is more than just a collection of tools and methods—it's also an underlying philosophy. Many beginners are attracted to the tools, such as causal loop diagrams and management flight simulators, in hopes that these tools will help them deal with persistent business problems. But systems thinking is also a sensitivity to the circular nature of the world we live in; an awareness of the role of structure in creating the conditions we face; a recognition that there are powerful laws of systems operating that we are unaware of; a realization that there are consequences to our actions that we are oblivious to.

Systems thinking is also a diagnostic tool. As in the medical field, effective treatment follows thorough diagnosis. In this sense, systems thinking is a disciplined approach for examining problems more completely and accurately before acting. It allows us to ask better questions before jumping to conclusions.

Systems thinking often involves moving from observing events or data, to identifying patterns of behavior over time, to surfacing the underlying structures that drive those events and patterns. By understanding and changing structures that are not serving us well (including our mental models and perceptions), we can expand the choices available to us and create more satisfying, long-term solutions to chronic problems.

In general, a systems thinking perspective requires curiosity, clarity, compassion, choice, and courage. This approach includes the willingness to see a situation more fully, to recognize that we are interrelated, to acknowledge that there are often multiple interventions to a problem, and to champion interventions that may not be popular (see "The Systems Orientation: From Curiosity to Courage," V5N9).

Why Use Systems Thinking?

Systems thinking expands the range of choices available for solving a problem by broadening our thinking and helping us articulate problems in new and different ways. At the same time, the principles of systems thinking make us aware that there are no perfect solutions; the choices we make will have an impact on other parts of the system. By anticipating the impact of each tradeoff, we can minimize its severity or even use it to our own advantage. Systems thinking therefore allows us to make informed choices.

Systems thinking is also valuable for telling compelling stories that describe how a system works. For example, the practice of drawing causal loop diagrams forces a team to develop shared pictures, or stories, of a situation. The tools are effective vehicles for identifying, describing, and communicating your understanding of systems, particularly in groups.

When Should We Use Systems Thinking?

Problems that are ideal for a systems thinking intervention have the following characteristics:
• The issue is important.
• The problem is chronic, not a one-time event.
• The problem is familiar and has a known history.
• People have unsuccessfully tried to solve the problem before.

Where Should We Start?

When you begin to address an issue, avoid assigning blame (which is a common place for teams to start a discussion!). Instead, focus on items that people seem to be glossing over and try to arouse the group's curiosity about the problem under discussion. To focus the conversation, ask, "What is it about this problem that we don't understand?"

In addition, to get the full story out, emphasize the iceberg framework. Have the group describe the problem

TIPS FOR BEGINNERS

• Study the archetypes.
• Practice frequently, using newspaper articles and the day's headlines.
• Use systems thinking both at work and at home.
• Use systems thinking to gain insight into how others may see a system differently.
• Accept the limitations of being inexperienced; it may take you a while to become skilled at using the tools. The more practice, the quicker the process!
• Recognize that systems thinking is a lifelong practice.

from all three angles: events, patterns, and structure (see "The Iceberg").

Finally, we often assume that everyone has the same picture of the past or knows the same information. It's therefore important to get different perspectives in order to make sure that all viewpoints are represented and that solutions are accepted by the people who need to implement them. When investigating a problem, involve people from various departments or functional areas; you may be surprised to learn how different their mental models are from yours.

How Do We Use Systems Thinking Tools?

Causal Loop Diagrams. First, remember that less is better. Start small and simple; add more elements to the story as necessary. Show the story in parts. The number of elements in a loop should be determined by the needs of the story and of the people using the diagram. A simple description might be enough to stimulate dialogue and provide a new way to see a problem. In other situations, you may need more loops to clarify the causal relationships you are surfacing.

Also keep in mind that people often think that a diagram has to incorporate all possible variables from a story; this is not necessarily true. In some cases, there are external elements that don't change, change very slowly, or whose changes are irrelevant to the problem at hand. You can unnecessarily complicate things by including such details, especially those over which you have little or no control. Some of the most effective loops reveal connections or relationships between parts of the organization or system that the group may not have noticed before.

And last, don't worry about whether a loop is "right"; instead, ask
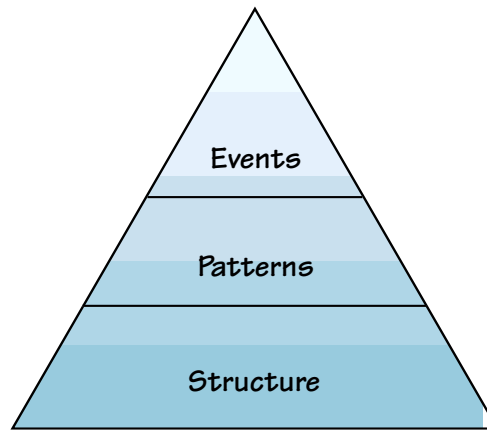
Use the iceberg framework to discuss patterns and discover how different people see the same event. Ask the following questions in a group setting:

Events: What happened?

Patterns: What has been happening? What are the trends we have seen?

Structure: Why is this happening? What forces (including the underlying mental models) have created this behavior?

yourself whether the loop accurately reflects the story your group is trying to depict. Loops are shorthand descriptions of what we perceive as current reality; if they reflect that perspective, they are "right" enough.

The Archetypes. When using the archetypes, or the classic stories in systems thinking, keep it simple and general. If the group wants to learn more about an individual archetype, you can then go into more detail.

Don't try to "sell" the archetypes; people will learn more if they see for themselves the parallels between the archetypes and their own problems. You can, however, try to demystify the archetypes by relating them to common experiences we all share.

How Do We Know That We've "Got It"?

Here's how you can tell you've gotten a handle on systems thinking:
• You're asking different kinds of questions than you asked before.
• You're hearing "catch phrases" that raise cautionary flags. For example, you find yourself refocusing the discussion

when someone says, "The problem is we need more (sales staff, revenue)."
• You're beginning to detect the archetypes and balancing and reinforcing processes in stories you hear or read.
• You're surfacing mental models (both your own and those of others).
• You're recognizing the leverage points for the classic systems stories.

Once you've started to use systems thinking for inquiry and diagnosis, you may want to move on to more complex ways to model systems—accumulator and flow diagrams, management flight simulators, or simulation software. Or you may find that adopting a systems thinking perspective and using causal loop diagrams provide enough insights to help you tackle problems. However you proceed, systems thinking will forever change the way you think about the world and approach issues. Keep in mind the tips we've listed here, and you're on your way! ◙

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