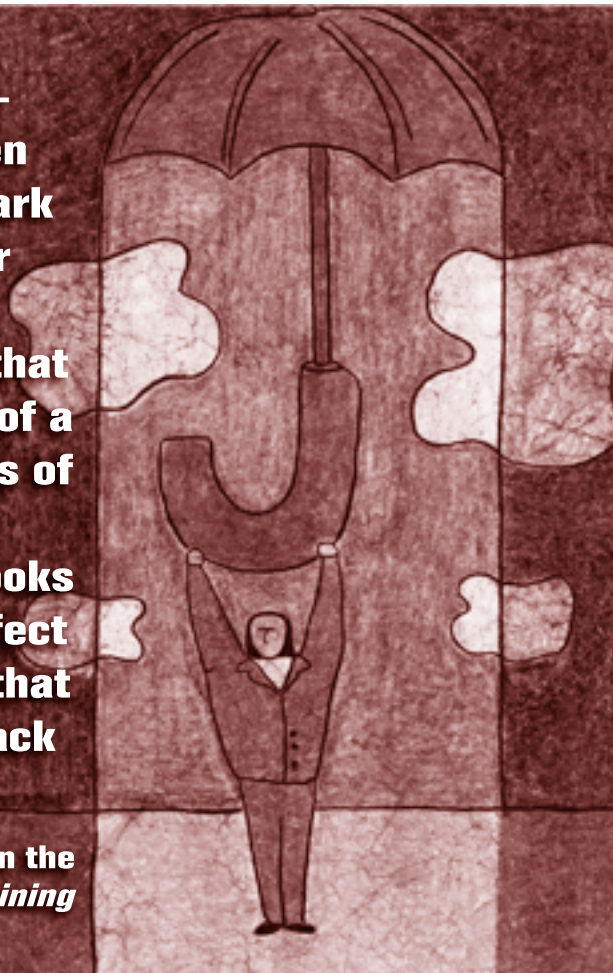


Leadership and Systems Thinking

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“For every problem there is a solution that is simple, neat—and wrong. This maxim has been attributed at various times to Mark Twain, H.L. Mencken, and Peter Drucker as a wake-up call to managers who mistakenly think that making a change in just one part of a complex problem will cure the ails of an entire system. Everyday management thinking too often looks for straightforward cause and effect relationships in problem solving that ignores the effect on, and feedback from, the entire system.”

Ron Zemke, writing in the February 2001 issue of *Training*



Leaders operate in the realm of bewildering uncertainty and staggering complexity. Today's problems are rarely simple and clear-cut. If they were, they would likely already have been solved by someone else. If not well considered—and sometimes even when they are—today's solutions become tomorrow's problems. Success in the contemporary operating environment requires different ways of thinking about problems and organizations. This article introduces some concepts of systems thinking and suggests that it is a framework that should be understood and applied by leaders at all levels, but especially those within the acquisition community.

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It is insufficient and often counterproductive for leaders merely to act as good cogs in the machine. Leaders perform a valuable service when they discern that a venerated system or process has outlived its usefulness, or that it is operating as originally designed but against the organization's overall purpose. Sometimes we forget that systems are created by people, based on an idea about what should happen at a given point in time. A wise senior warrant officer referred to this phenomenon as a BOGSAT—a bunch of guys sitting around talking.

Systems Endure

Although times and circumstances may change, systems tend to endure. We seem to be better at creating new systems than changing or eliminating existing ones. Sociologist Robert K. Merton coined the term “goal displacement” to describe what happens when complying with bureaucratic processes becomes the objective rather than

focusing on organizational goals and values. When that happens, systems take on a life of their own and seem immune to common sense. Thoughtless application of rules and procedures can stifle innovation, hamper adaptivity, and dash creativity. Wholesale disregard of rules and procedures, however, can be equally disastrous.

When members of an organization feel as though they must constantly fight the system by circumventing established rules and procedures, the result can be cynicism or a poor ethical climate. Because of their experience and position, leaders are invested with the authority to intervene and correct or abandon malfunctioning systems. At the very least, they can advocate for change in a way that those with less positional authority cannot. Leaders at all levels should, therefore, be alert to systems that drive human behavior inimical to organizational effectiveness. It is arguable that military organizations placing a premium on tradition and standardization are predisposed to goal displacement. We need leaders, therefore, who can see both the parts and the big picture; to this end some of the concepts of systems thinking are useful.

The Department of Defense is a large and complex social system with many interrelated parts. As with any system of this type, when changes are made to one part, many others are affected in a cascading and often unpredictable manner. Thus, organizational decisions are fraught with second- and third-order effects that result in unintended consequences. “Fire and forget” approaches are rarely sufficient and are sometimes downright harmful. Extensive planning—combined with even the best of intentions—does not guarantee success. Better prediction is not the answer, nor is it possible. There are so many interactions in complex systems that no individual can be expected to forecast the impact of even small changes that are amplified over time.

Getting Beyond the Machine Metaphor

In her book *Organization Theory: Modern, Symbolic, and Postmodern Perspectives*, Mary Jo Hatch provides an introduction to general systems theory that is useful in thinking about organizations. She makes a point worthy of repeating: The use of lower level models is problematic when applied to higher level systems. Thus, the language of simple machines creates blind spots when used as a metaphor for human or social systems; human systems are infinitely more complex and dynamic. In other words, it can be counterproductive to treat a complex dynamic social system like a simple machine.

Noted management scholar Russell Ackoff puts it another way. He asserts that we are in the process of leaving the machine age that had roots in the Renaissance and came into favor through the industrialization of society. In that era the machine metaphor became the predominant way

of looking at organizations. The universe was envisioned by thinkers such as Isaac Newton, as having the characteristics of a big clock. The workings of the clock could be understood through the process of analysis and the analytical method.

Analysis involves taking apart something of interest, trying to understand the behavior of its parts, and then assembling the understanding of the parts into an understanding of the whole. According to Ackoff, “One simple relationship—cause and effect—was sufficient to explain all relationships.” Much machine-age thinking remains with us today; however, there are alternatives.

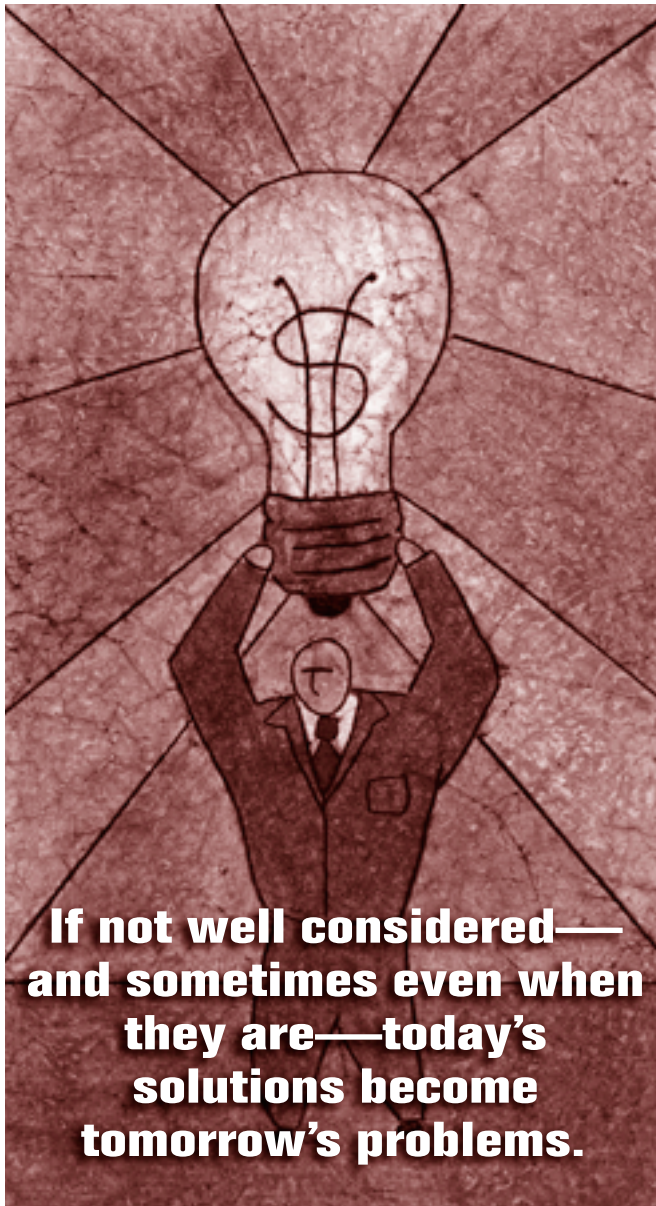
Systems Thinking

Systems, like the human body, have parts, and the parts affect the performance of the whole. All of the parts are interdependent. The liver interacts with and affects other internal organs—the brain, heart, kidneys, etc. You can study the parts singly, but because of the interactions, it doesn’t make much practical sense to stop there. Understanding of the system cannot depend on analysis alone. The key to understanding is, therefore, synthesis. The systems approach is to:

- **Identify a system.** After all, not all things are systems. Some systems are simple and predictable, while others are complex and dynamic. Most human social systems are the latter.
- **Explain the behavior or properties of the whole system.** This focus on the whole is the process of synthesis. Ackoff says that analysis looks into things while synthesis looks out of things.
- **Explain the behavior or properties** of the thing to be explained in terms of the role(s) or function(s) of the whole.

The systems thinker retains focus on the system as a whole, and the analysis in step three (the third bullet) is always in terms of the overall purpose of the system. Borrowing Ackoff’s approach and using the example of a contemporary defense issue might help clarify what is admittedly abstract at first glance.

Consider the Institute for Defense Analyses report *Transforming DoD Management: the Systems Approach*. The authors of this study suggested an alternative approach to Service-based readiness reporting, one that considered the entire defense transportation system. One section of the report suggests that knowing the status of equipment, training, and manning of transportation units is helpful but insufficient to determine the readiness of a system that includes elements such as airfields, road networks, ships, and ports. The defense transportation system includes elements of all Services and even some commercial entities. It only makes sense, therefore, to assess readiness of these elements as part of a larger system that has an identifiable purpose—to move personnel and materiel



to the right place at the right time. In this example you can clearly see the approach recommended by Ackoff.

The Problem of Busyness

Few would disagree, in principle, that senior leaders should see not only the parts, but also the big picture. So why don't we do more of it? One reason is because we are so darned busy. Immersed in the myriad details of daily existence, it is easy to lose sight of the bigger picture. While it may be important to orient on values, goals, and objectives, the urgent often displaces the important. Fighting off the alligators inevitably takes precedence over draining the swamp.

The problem of busyness can be compounded by senior leaders who are overscheduled and uneducated in systems thinking. It seems as though military officers today

work excessive hours as a matter of pride. A cursory examination of the calendar of most contemporary officers, especially flag officers, will indicate an abusive pace. Consider as an alternative the example of one of America's greatest soldier-statesmen, Gen. George C. Marshall. Even at the height of World War II, Marshall typically rode a horse in the morning for exercise, came home for lunch and visited with his wife, went to bed early, and regularly took retreats to rejuvenate. To what extent are such pauses for reflection and renewal valued today? Simple cause and effect thinking combined with a culture of busyness can result in decision makers who rapid-fire short-term solutions at long-term problems without taking time to think about the actual impact of those solutions.

A common symptom of this phenomenon can be seen in leaders who unrealistically demand simplicity and certainty in a complex and uncertain environment. The drive for simplicity can lead to the need for excessive assumptions. Few contemporary issues of significance can be understood, much less solved, in a two-page point paper or a PowerPoint® slide. We might also ask whether speed and decisiveness in decision making, so valued at the tactical level, work to the detriment of good decisions at the strategic level. Absent some discipline and techniques to do otherwise, it is very hard to find time for reflection and thoughtful decision making.

*Most people expect learning to just happen without their taking the time for thought and reflection, which true learning requires. In the past, with slower communication systems, we often had a few weeks to ponder and rethink a decision. Today we're accustomed to e-mails, faxes, overnight letters, and cell phones, and have come to believe that an immediate response is more important than a thoughtful one. — Steven Robbins, writing in *Harvard Business School Working Knowledge* in May 2003.*

Interrelationships, Not Things

Peter Senge submits, in *The Fifth Discipline*, that systems thinking provides just the type of discipline and toolset needed to encourage the seeing of "interrelationships rather than things, for seeing patterns of change rather than static 'snapshots.'" Senge argues that this shift of mind is necessary to deal with the complexities of dynamic social systems.

He suggests that we think in terms of feedback loops as a substitute for simple cause and effect relationships.

As an example, systems scholar Daniel Aronson suggests that we imagine a farmer who determines that an insect infestation is eating his crop. The conventional approach is to apply a pesticide designed to kill the insect. Our example at this point depicts the lowest level of the thinking hierarchy—reaction. In response to the appearance

of insects, the farmer applies a pesticide because he assumes that what has worked in the past will work in this instance. As additional insects appear, the farmer applies more pesticide. While the farmer's goal is to produce a crop, his activity is increasingly consumed by recurring applications of the chemical. He is surely busy, but he may not necessarily be productive. A systems thinker might step back from the problem, take a broader view, and consider what is happening over time.

For example, he might think about whether there are any patterns that appear over weeks or months and attempt to depict what is actually occurring. Recognizing the pattern of a system over time is a higher-order level of thinking. The systems thinker might notice that insect infestation did decrease after applying pesticide, but only for a short time. Insects that were eating the crop were actually controlling a second species of insect not affected by the pesticide. Elimination of the first species resulted in a growth explosion in the second that caused even more damage than the first. The obvious solution caused unintended consequences that worsened the situation.

An accomplished systems thinker would model the above example using a series of feedback and reinforcing loops. The specifics of the modeling technique are less important at this point than the observation that systems thinking tends to see things in terms of loops and patterns aided by constant assessment of what is happening, rather than flow charts and reliance on what *should be* happening. At the highest level of thinking, the farmer would try to identify root causes or possible points of intervention suggested by these observations.

The Importance of Continuous Assessment

In *Why Smart Executives Fail*, Sydney Finkelstein examined over 50 of the world's most notorious business failures. His analysis indicated that in almost every case, the failures were not attributable to stupidity or lack of attention. To the contrary, the leaders of well-known corporations such as Samsung Motors, WorldCom, and Enron were exceptionally bright, energetic, and deeply involved in the operation of their businesses. Up to the point of massive corporate failure, they were all extremely successful, and in almost every case, there were some in the organization who vainly raised objections to the course that eventually proved disastrous. In most instances, the executives failed to see or accept what was actually happening. In some cases, they were blinded by their own prior successes; in other cases they inexplicably held tenaciously to a vision, despite plenty of evidence that the chosen strategic direction was ill-advised. The systems thinker's pragmatic focus on determining what is actually happening serves as a preventative to self-delusional wishful thinking. Wishful thinking is no substitute for a realistic appraisal. In the language of systems thinking,

the executives were trapped by their own faulty mental models.

The continuous assessment process that is characteristic of systems thinking is essential in a volatile, rapidly changing environment. It takes time and good habits of critical reflection to engage in this kind of learning, both for individuals and organizations.

A systemic approach to failure is more likely to result in effective long-term solutions. Imagine for a moment if the incidents of abuse at Abu Ghraib were chalked up merely to ineffective leadership or just miscreant behavior by some thugs on the night shift. If other factors contributed to the problem, after relieving the chain of command for cause and prosecuting the abusers, the members of the replacement chain of command might have found themselves in an equally untenable situation. While inspired leadership can make a difference under the worst of conditions, we might ask just how heroic we expect our leaders to be on a regular basis. When a system is so obviously stacked against our leaders, there is a moral imperative to change the system.

Systems thinking is no panacea. There is no checklist to work through that will guarantee someone is thinking in a way that will capture the big picture or identify root causes of difficult problems. There are some concepts and approaches embedded in the systems thinking literature, however, that can be very helpful when considering why a situation seems to be immune to intervention, or why a problem thought to be solved has returned with a vengeance. Here are some of the concepts:

- Focus on the purpose for which a system was created over the processes and procedures of the system.
- Simple cause-and-effect relationships are insufficient to understand or explain a complex social system. Patterns over time and feedback loops are a better way to think about the dynamics of complex systems.
- Think in terms of synthesis over analysis; the whole over the parts.
- Busyness and excessive focus on short term gains interferes with our ability to use a systems approach.
- Leaders must see what is actually happening over what they want to see happen.
- Thinking about systems and their dynamics suggests alternative approaches and attunes leaders to important aspects of organizational behavior, especially in military organizations that value tradition and standardization.

The author welcomes comments and questions. Contact him at george.reed@us.army.mil.

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