

THE LAWS OF SYSTEMS THINKING

- 1. Today's problems come from yesterday's "solutions."** - Solutions that merely shift problems from one part of a system to another often go undetected because those who "solved" the first problem are different from those who inherit the new problem.
- 2. The harder you push, the harder the system pushes back.** - When our initial efforts fail to produce lasting improvements, we "push harder"--faithful to the creed that hard work will overcome all obstacles, all the while blinding ourselves to how we are contributing to the obstacles ourselves.
- 3. Behavior grows better before it grows worse.** - A typical solution feels wonderful, when it first cures the symptoms. It may be two, three, or four years before the problem returns, or some new, worse problem arrives. By that time, given how rapidly most people move from job to job, someone new is sitting in the chair.
- 4. The easy way out usually leads back in.** - Pushing harder and harder on familiar solutions, while fundamental problems persist or worsen, is a reliable indicator of nonsystemic thinking--what we often call the "what we need here is a bigger hammer" syndrome.
- 5. The cure can be worse than the disease.** - The long-term, most insidious consequence of applying nonsystemic solutions is increased need for more and more of the solution. This is why ill-conceived interventions are not just ineffective, they are "addictive" in the sense of fostering increased dependency and lessened abilities of local people to solve their own problems.
- 6. Faster is slower.** - The optimal rate is far less than the fastest possible growth. When growth becomes excessive, the system itself will seek to compensate by slowing down, perhaps putting the organization's survival at risk in the process.
- 7. Cause and effect are not closely related in time and space.** - There is a fundamental mismatch between the nature of reality in complex systems and our predominant ways of thinking about reality. The first step in correcting that mismatch is to let go of the notion that cause and effect are close in time and space.
- 8. Small changes can produce big results--but the areas of highest leverage are often the least obvious.** - High-leverage changes are usually highly nonobvious to most participants in the system. They are not "close in time and space" to obvious problem symptoms. This is what makes life interesting.
- 9. You can have your cake and eat it too--but not at once.** - They only appear as rigid "either-or" choices, because we think of what is possible at a fixed point in time. Next month, it may be true that we must choose one or the other, but the real leverage lies in seeing how both can improve over time.
- 10. Dividing an elephant in half does not produce two small elephants.** - Living systems have integrity. Their character depends on the whole; to understand the most challenging managerial issues requires seeing the whole system that generates the issues.
- 11. There is no blame.** - Systems thinking shows us that there is no outside, that you and the cause of your problems are part of a single system. The cure lies in your relationship with your "enemy."

-From The Fifth Discipline, Peter Senge, 1990.

The Five Disciplines of a Learning Organization

- 1 **Personal mastery** is a discipline of continually clarifying and deepening our personal vision, of focusing our energies, of developing patience, and of seeing reality objectively.
- 2 **Mental models** are deeply ingrained assumptions, generalizations, or even pictures of images that influence how we understand the world and how we take action.
- 3 **Building shared vision** - a practice of unearthing shared pictures of the future that foster genuine commitment and enrollment rather than compliance.
- 4 **Team learning starts with dialogue**, the capacity of members of a team to suspend assumptions and enter into genuine thinking together.
- 5 **Systems thinking** - The Fifth Discipline that integrates the other four.

Systems Thinking References

ANSI/AIHA Z10, Occupational Health and Safety Management Systems

The Fifth Discipline: The Art & Practice of The Learning Organization

Peter Senge, 2006

Managing the Risks of Organizational Accidents

James Reason, 1997

Drift into Failure

Sidney Dekker, 2011

Just Culture: Balancing Safety and Accountability

by Sidney Dekker Jun 2012

Systems Thinking for Curious Managers: With 40 New Management f-Laws

Russell Ackoff, 2010

Advanced Safety Management: Focusing on Z10 and Serious Injury Prevention

***Fred is in the process of updating this book. Fred Manuele**

New York: John Wiley & Sons, 2014. This reference addresses specific provisions, including risk assessment methods and prioritization; applying a prescribed hierarchy of controls; implementing safety design reviews; and more. It also explains how to integrate best practices for the prevention of serious injuries in your workplace.

Pre-Accident Investigation, Todd Conklin, 2012