

Systems Thinking

How to Solve Problems So They Stay Solved

What Is *Systems Thinking*?

- The process of understanding how individual elements influence one another within a whole.
- An approach to problem solving that focuses on the relationships among various parts of a system.

Benefits of Systems Thinking

- Helps you see the consequences (intended and unintended) of a potential change.
- Enables you to minimize silo thinking.
- Helps you avoid making quick-fix decisions that you might regret later.
- Makes your organization more competitive and cost-effective.
- Provides a common language for examining and solving problems across an organization.
- Helps solve problems once and for all and helps prevent future problems.

Pitfalls to Avoid

Systems thinking can be derailed by a variety of factors, including:

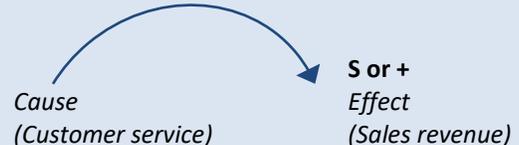
- ✓ **Resistance to change.** Complex systems have a high degree of inertia and are naturally resistant to change.
- ✓ **Silo mentality.** This occurs when units within an organization identify more with their particular “silo” than with the organization as a whole.
- ✓ **Belief that it’s a waste of time.** CLDs don’t show anything new, and systems thinking may appear to be a “flavor of the month” program.

Applying Systems Thinking

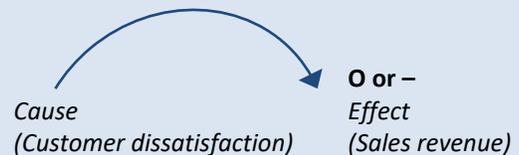
- **Encourage innovation.** Look at a proposed innovation’s potential consequences.
- **Improve productivity.** Remove constraints and obstacles.
- **Learn how to learn.** Learn from mistakes and examine assumptions.
- **Refine your management and leadership skills.** Look at the factors that influence performance and rewards.

Key Terms

- ✓ **System:** A set of connected elements forming a complex whole.
- ✓ **Causal loop diagram (CLD):** A visual picture of how various elements in a system are connected and how they interact with one another.
- ✓ **Link:** A cause-and-effect relationship that exists between two system elements.
- ✓ **Same/positive effect:** A change in the cause produces the same kind of change (increase or decrease) in the effect.



- ✓ **Opposite/negative effect:** A change in the cause produces the opposite kind of change (increase or decrease) in the effect.



- ✓ **Feedback loop:** A change in an element of a system that eventually returns to cause a further change in that same element.
- ✓ **Reinforcing loop:** A feedback loop where the net change of all the elements results in an exponential increase or decrease.
- ✓ **Balancing loop:** A feedback loop where the changes of some elements counteract the others and the net change of all the elements results in a desired state or condition of stasis.
- ✓ **Root cause:** The element in a system that explains why the issue or problem being examined is occurring.
- ✓ **Root cause analysis:** The process of separating symptoms from the fundamental (root) cause.
- ✓ **Delay:** The span of time between an action and its consequence.
- ✓ **Gemba:** The real place; the frontline. American equivalent is “management by walking around.”