



Long-Term Improvement

Most improvement initiatives end in failure. And it's even difficult to sustain initially successful improvement programs.

Here are structures that often work against us, because we don't understand them. But they can work for us.



The Problem

We'd like to work smarter, rather than work harder, so we want process improvement initiatives, such as TQM, to be successful. But most improvement programs end in failure. Why they fail is difficult to discover when we use TQM-like methods to look for independent and separable root causes.

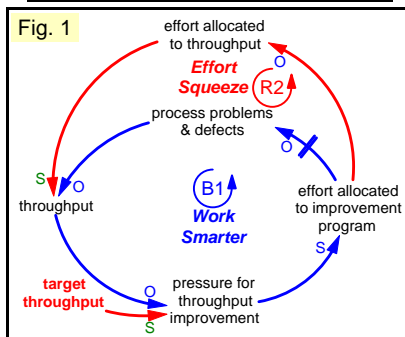
That's because processes exist in the context of a system and process improvement failures are systems problems. For systems, the root causes of our "messes" (sets of problems), are feedback loops. As noted in "Overcoming the Improvement Paradox" (see box below), "... managers must become adept in understanding their organization as a dynamic system." *

Here we briefly review feedback loops that cause long-term improvement programs to fail as well as some of the external environmental influences and management policies that affect them.

Exponential Improvement

B1, Work Smarter in Figure 1 shows that when "throughput" is

What is systems thinking?
Seeking to understand system behavior by examining "the whole" ... instead of by analyzing the parts.



Improvement programs apply appropriate corrective action until we reach "target throughput; we **Work Smarter, B1**. But this takes time away from production and creates an **Effort Squeeze, R2**.

below "target", pressure to improve leads to more "effort allocated to improvement" to reduce "process problems & defects."

This balancing loop corrective action is meant to continue until we reach the target. This is **Exponential Improvement**.

But more improvement effort means less production effort, putting an **Effort Squeeze, R2**, on throughput.

Three More Loops That Affect Success

To simplify the diagram, Figure 2 omits loops B1 & R2 in the center to show loops:

R3, Results Create Employee Pull: The more problems are found and corrected, the more the program is perceived to be of value. This increases commitment and the effort on improvement.

B4, Rise to the Challenge: To address low commitment and increase effort, organizations often set "stretch objectives." The larger the gap between "stretch objectives" and the "improvement results" obtained, the greater the effort allocated to the program.

R5, Credibility Gap: However, "stretch objectives" that are too

stretched will be perceived as infeasible and reduce "commitment to the improvement program".

More Loops

Figure 3 adds more structure (yes, it's complex; sorry about that):

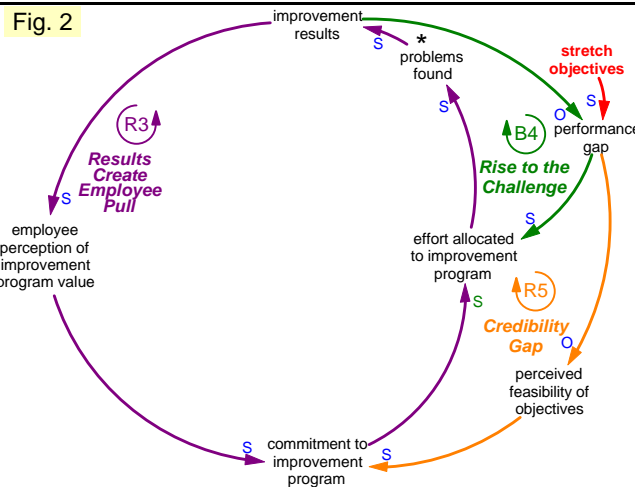
B6, Tougher Challenges: Because "low hanging fruit" is usually addressed first, more complex problems remain. The half-life to improve them is greater.

B7, New Challenges: As problem organizational and technical complexity increase, the tools needed become less familiar and less well developed

Why Improvement Programs Fail

Our findings suggest that the inability to manage an improvement program as a dynamic process is the main determinant of program failure. Improvement programs are tightly coupled to other functions and processes in the firm, and to the firm's customers, suppliers, competitors and capital markets. Failure to account for the feedbacks among these tightly coupled activities leads to unanticipated and often harmful side effects.

Keating, et al., "Overcoming the Improvement Paradox," 1999



In Figure 2, **R3** shows that employee commitment depends on their perception of improvement program value. Loop **B4** shows people respond to stretch objectives, unless they're unbelievable (**R5**).

to increasingly limit improvement effort effectiveness (e.g., increasing complexity means a need for less emphasis on TQM and more emphasis on systems thinking).

B8, Diffuse Benefits: As complexity increases, more diffuse results are more difficult to observe. "Commons" improvements help everyone a lot, but each individual only a little.

B9, Scope Creep: As positive results increase, the tendency is to increase the "scope of improvement efforts" to get even more benefit. But this can extend the effort to problems for which the approach (e.g., TQM) is less well-suited.

R10, Capacity Building: More "commitment to improvement" increases the "training & support needed". Management willing, this increases "training & support capacity" to increase "employee perception of program value."

R11, Training Creates Employee Pull: Increasing the "adequacy of training & support" directly increases "employee perception of program value".

B12, Skill Dilution: As "training & support needed" increases, training resources can be overwhelmed. This reduces the "effectiveness of the improvement effort" and the "employee perception of improvement program value".

B13, Fear of Layoffs: Increased productivity creates "excess capacity". This decreases "job security" as employees see themselves working their way out of a job. Commitment suffers.

R14, Better Products: Better products increase "market share" and "demand" and reduce "excess capacity".

R15, More Products: New products can create new applications to increase "industry demand" and reduce "excess capacity".

B16, Who's at Fault?:

Discovering and correcting problems can activate **Defensive Routines**. Those who feel blamed can fear for their jobs, which also reduces "commitment to improvement."

Environmental influences management policies

The orange variables in Figure 3 are two external environmental influences (there are others) that can affect the improvement effort. They are external driving forces (combinations form scenarios). The red variables are management effort (combinations form strategies). In strategic planning we consider different strategies for different scenarios.†

Conclusion: Leadership Fosters Loops to Work for Us

Reinforcing loops either promote improvement in a virtuous cycle or kill improvement in a vicious cycle. Virtuous cycles are restrained by limiting balancing loops. Leaders develop policies that help these feedback loops work for us, not against us ... *in the long run*. The future of our organizations, companies, communities and nation depend on it.

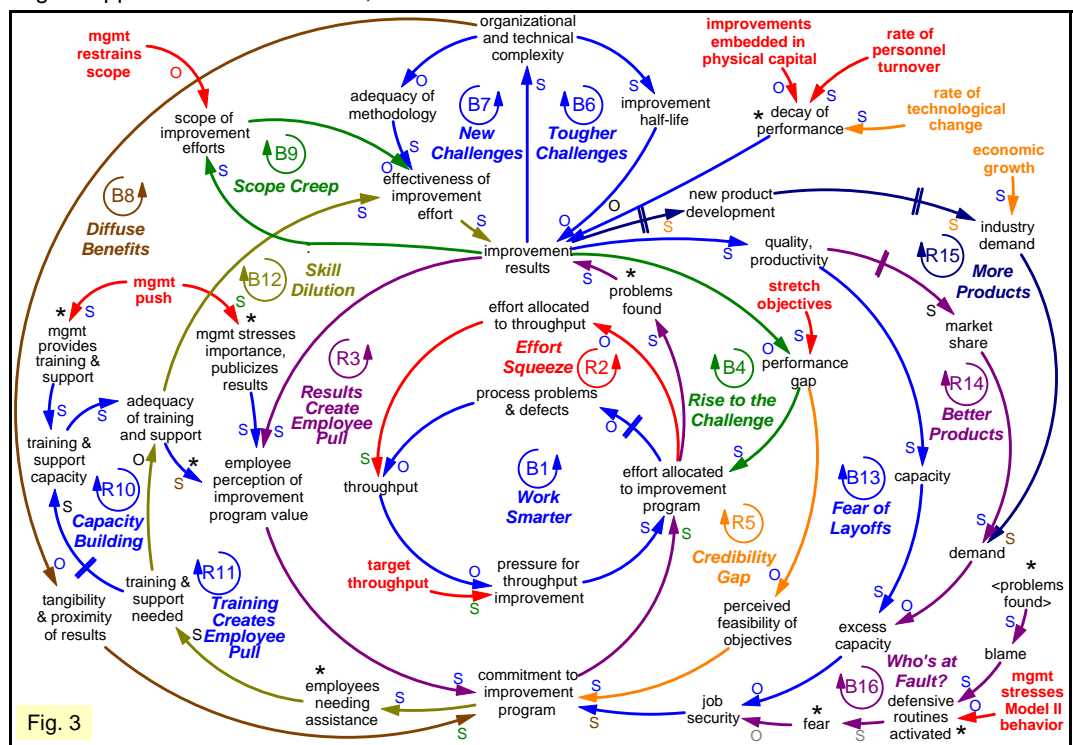


Fig. 3

Added loops, 6 to 16, are feedbacks that affect improvement initiative success. The balancing loops (Bs) limit improvement program success. The reinforcing loop (Rs) are double-edged swords that can help or hurt.

This Long-Term Improvement Stuff is Really Tough

Process improvement has become an imperative for businesses seeking competitive advantage, yet it is disturbing how few organizations make lasting and successful use of process improvement tools such as total quality management and reengineering. These tools should help to raise productivity, boost quality and enhance competitiveness. However, quality programs often struggle to gain initial acceptance and to sustain continuous improvement. Despite the demonstrated benefits of many improvement techniques, most attempts by companies to use them have ended in failure. In fact, companies have found it extremely difficult to sustain even initially successful process improvement programs.

Keating, Oliva, Repenning, Rockart, & Sterman, "Overcoming the Improvement Paradox," European Management Journal, 1999

Workshop Benefits

- An organization can:
- Examine improvement initiative successes & failures in the context of this structure.
- Examine policies that have been beneficial and counterproductive.
- Become more capable of understanding the organization as a dynamic system.
- Develop policies that will work in the long run.
- Define measures to confirm the policies are working over time.

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† See *CA* paper, *From Causal Loops to Action*, for how to use these feedback loops in strategic and project planning.