Simpler CONSULTING
an IBM Company

Problem-Solving — The Secret to Successful Lean Transformations

At Simpler® Consulting, an IBM Company, we're often asked what we think is the "secret ingredient" to making a Lean transformation successful. From a big-picture view, our experience has shown us there are four major factors necessary for breakthrough organizational change, and they can be expressed by the following formula:

Leadership commitment
X Team member engagement
X Strength of transformational methodology
X Problem-solving capabilities of the organization
= Lean transformation success

If any of these four elements are missing, the organization will have a slower, less effective transformation — or it could fail altogether.

After all, it is a well-established fact that organizations won't reach their transformational potential without unwavering leadership commitment and involvement. In previous editions of Simpler's *Lean Insights*, we've discussed the topics of leadership commitment (August 2008) and leader standard work (April 2013). In his book, *Leading the Lean Enterprise Transformation*, George Koenigsaecker addresses the criticality of leadership.

Next, both team member engagement and transformation methodology, though far from easy, develop organically from robust implementation of the Simpler Business System® (SBS).

Finally, there's the organization's problem-solving capability. While not a secret ingredient per se, that element is often simply assumed to be present and easy to overlook — even though lack of it has stunted more than a few organizations' transformational efforts.

Problem-Solving as a Key Enabler to Lean Transformation

It's natural for all of us to want to avoid discomfort, and process improvement draws people into uncomfortable situations. However, with problem-solving skills, we can move through the uneasiness.

Consider that identifying and eliminating waste is one of the most rewarding elements of the Rapid Improvement Event (RIE) process. Team members are empowered and energized. "Lowering the water," as the often-used Lean analogy goes, is exciting. But "breaking the rocks," or identifying and removing obstacles on the path to perfection, is hard work.

The wastes discovered by the RIE process — sometimes represented by excessive inventory, defects and accompanying rework, and unplanned delays — were not usually intentionally designed into the original process. Instead, they were added to the process as workarounds, as the result of unresolved problems, and soon became the new "normal." The RIE process exposes these wastes and quickly eliminates them. But unless the underlying root causes of the problems are addressed and resolved, the new "leaned" process is likely to struggle, stall, or in the extreme, regress to the prior state.

Simpler CONSULTING
an IBM Company

As part of their commitment to the Lean transformation, leaders must focus on building the organization's problem-solving capabilities.

Every Problem Is an Improvement Opportunity

Within all organizations there is a virtually endless supply of problems — and an endless supply of opportunities for improvement. Those opportunities only become real, though, when the organizational culture focuses on continuous improvement.

The first step in solving problems is to identify them. Identification of problems begins by going to where the work is done — the "gemba." Leaders must venture into the workplace to observe how work is being done and seek to understand what is really happening with the product/service, the individual doers, the customer, or the organization.

One must also understand the standard, or "what good looks like," in the gemba. The five core components of the flow cells developed in the RIE process (One-by-One Flow, 6S, Standard Work, Pull, and Visual Management) all define the expected standard operation of the process. By simply observing the process in action during routine gemba walks and comparing what is seen to the documented standard work, leaders can easily pinpoint the abnormalities or problems, and begin to solve for them.

One easy and powerful technique Lean leaders can utilize is to ask a series of simple questions during in-gemba reviews:

1) Is there a standard?

2) Is the standard being followed?

3) Is the process producing the desired outcomes?

4) How is the standard being improved?

People and their ideas are at the heart of continuous improvement. Engaging team members in discussions regarding standard work and its implementation (or lack thereof) can often expose problems and root causes that need to be addressed. Simple white board exercises with team members to explore the "five whys" or "fishbone diagrams" (also known as cause-and-effect diagrams) can be helpful.

Process Control Boards are also full of "treasures" that may be impeding process successes. The actual versus target variances, as well as the comments section, often point directly to problems and their solutions.

The Managing for Daily Improvement (MDI) process is another great problem-solving process. MDI systemically engages team members who are experts at their process. The daily huddle to review team performance, prioritize problems, and identify and implement solutions can also solve problems or prevent new ones before they become major impediments.

Solving problems in the gemba doesn't have to be overly complicated. Leaders simply need to create the systems to make the standard known, ensure abnormalities are visible, and then empower and assist team members in implementing countermeasures.

Simpler CONSULTING
an IBM Company

A3 Thinking

All problem-solving should be grounded in scientific method. Processes such as Plan-Do-Study-Adjust (PDSA) or Define-Measure-Analyze-Improve-Control (DMAIC) can be solid, but the preferred problem-solving process in Lean-thinking organizations is A3-based thinking.

The A3 itself is a single sheet of paper, roughly 11" x 17." But more critical is the methodology that the A3 represents. The nine core steps of A3 problem-solving methodology are:

1) Reason for Action – What is the problem or chief complaint? Why is it important to solve this problem?
2) Current State – Quantitative and qualitative description of the actual situation
3) Target State – Quantitative and qualitative description of the desired end state after the problem-solving cycle
4) Gap Analysis – Identification of potential root causes for current state varying from the target
5) Solution Approach – Hypotheses to test the potential root causes
6) Rapid Experiments – Testing to validate/invalidate potential solutions
7) Completion Plan – Implementation of proven solutions and new process standards
8) Confirmed State – Monitoring the performance of the improved process to verify the target state has been met and the problem has truly been solved
9) Lessons Learned – Reflections from the cycle of learning

The first three steps of A3 thinking are really about clearly defining the problem, and that's half the battle. Problems can be more easily resolved when facts and data are used to describe the extent of the issue. Reacting to a problem with a quick fix, without the right information, will usually result in the problem reoccurring at the most inopportune time.

The Gap Analysis, Solution Approach, and Rapid Experiments elements of the A3 approach are the technical core of solving a well-defined problem. There are dozens of analytical tools that can be used in this portion of the journey. Elementary tools such as the simple observation of actual versus standard work, motion/transportation "spaghetti" diagrams, and hand-off/communication diagrams can be quickly learned by anyone and used in most situations. Intermediate-level tools such as Pareto diagrams, histograms, Ishikawa diagrams, error proofing, and run charts are relatively straightforward though slightly more advanced. The application of these more advanced tools takes practice, and technical experts, such as "belts," can be asked to assist.

Thankfully, Lean leaders do not need to be technically skilled in all of these tools. The key to good problem-solving leadership is to engage team members and support technical experts in a structured, problem-solving process methodology.

The final three steps of A3 thinking ensure the full implementation of proven solutions, verify their ongoing effectiveness, and capture the hard-earned lessons learned for the future.

In non-Lean organizations, it's all too common for "ready-fire-aim" problem-solving approaches to prevail. Shooting from the hip can be fun, and gunslingers are often revered for "fixing" (not irreversibly solving) the same problems, often over and over again. That's one of the reasons why the paradox of "slowing down to go fast" via A3 thinking is extremely powerful in a Lean-thinking, problem-solving culture. One of the most

impactful yet easiest contributions a Lean leader can make is to insist that A3 thinking be used as the core of problem-solving discussions.

Conclusion

Lean improvement cycles eliminate waste in processes, resulting in higher customer value. Successful problem-solving capabilities allow organizations to hold these gains and continue the improvement cycles. Lean leaders who understand that problem-solving is the often-missing critical factor to sustainable transformation success will be the most effective.

Jim Little

Regional Vice President

Simpler Consulting, an IBM Company

Jlittle5@us.ibm.com

512-568-6602