

What I learned during my problem-solving journey

Featuring my five favorite lessons

BY SID DICKERSON

What did you ask me? Do I want to join the QC Circle team?

It was December 1987, 31 years ago, and I was five days into my first job—second shift in the paint shop at the Georgetown, Kentucky, Toyota facility.

Because I had failed to mask my puzzled stare, the team explained to me that they talk about the problems they run into and work together to solve them. Still not knowing what that meant or what I had to do, I joined up. I mean, who doesn't want to solve problems?

It turned out that problem solving in a Quality Control (QC) circle team was like the No. 1, award-winning movie everyone else is experiencing and you know nothing about. Little did I know that the 8-step problem-solving process (see the process steps on p. 19) that Toyota



Ingersoll Rand CEO Mike Lamach assesses problem solving progress with a team in Taicang, China. Senior management should regularly go to the gemba and see for themselves, then coach and teach others.

taught management and team members alike builds lasting leadership skills and the ability to deliver successful results.

The QC Circle facilitator suggested to me and my classmates that we train to lead the team on solving a problem, or even start another team. Again, I joined up. This gave me an early lesson in the power of employee engagement and

teamwork to solve problems.

There was also power in two other elements: 1) the prioritization process and 2) the go-and-see process.

Too many organizations and teams struggle with prioritization. The process we used may seem elementary, but it is effective. To identify the most important

problem, each team member submitted a problem, and we voted to determine the top three. Then we repeated the voting until we narrowed it down to one. The approach kept us from trying to solve too many problems at once and diluting our resources.

With our collective sight set on one problem, the QC team went to “go and see.” Often we visited during lunch, or before or after a shift, which meant the usual operator was not there. Someone from the QC team would demonstrate the job for the others. We would watch what was happening, gather data and talk about the problem. Then we would brainstorm potential countermeasures, evaluating each with additional consideration given to safety and quality. The team then tried the solutions, which sometimes led to new ideas, until a countermeasure met the objective.

This process was—and is—always about learning. We welcomed challenges to our thinking, which were common. Challenges helped us determine whether we had found the root cause or only alleviated a symptom. Sometimes we just improved the condition. Other times we solved the problem. Management coaching was supportive under both conditions, and leaders were expected to align.

The phenomenal fab five

Fundamental to any problem-solving journey is coaching—no matter how experienced you are. I fondly recall the coaching I received from several coordinators at our Japanese sister plant during the next stage of my journey, my Toyota management tenure. The coaching did not reveal new material or offer new training; rather it encouraged practice, reinforcement and application.

When following Toyota’s 8-step problem-solving process, effective coaches relentlessly reinforced the following five learnings:

1. Follow the process step by step. Don’t

Toyota’s 8-Step Problem-Solving Process

1. Define the problem
2. Break it down
3. Set a target
4. Identify root cause
5. Develop solutions and prove them out
6. Create and implement plan
7. Track and standardize results
8. Share results

start in the middle with a solution and work back to a problem.

2. Narrow the problem to where the next logical question is “why” and begin Step 4 with this question.
3. Go and see for yourself.
4. Determine if there is a standard. If there is a standard, determine whether you are following it or not. If there is no standard, create one.
5. Find the root cause. The most

important part is to solve the problem that is causing the symptom(s).

Also, as a coach/leader, you must “run to the red.” That is, you should look for system breakdowns and failures. Once your team follows the 8-step process and implements a countermeasure, you then must verify that the solution solves the problem.

Stepping into uncharted territory

When I left Toyota to join Ingersoll Rand in 2013, it was like going from a fancy restaurant sirloin steak to a pub burger. Both were good, but one was a bit more sophisticated. While not as far along in their journey, Ingersoll Rand was no stranger to lean and problem solving. Chairman and CEO Mike Lamach had already developed a reputation—internally and within the industry—for being passionate about reaping the benefits lean operations had to offer. My opportunity was perfectly clear: join the senior leadership team in their efforts to develop problem solvers and help make this organization excel.

When I joined, a strong initiative was underway to deploy a standard problem-solving methodology across the global company that centered on how we delight



Respect for people is at the heart of Ingersoll Rand’s lean journey.

our customers, work operationally from the customer backwards and always put the customer first. Leadership had studied multiple problem-solving methodologies and formats based on expertise in the company. Ingersoll Rand adds one more step to the Toyota methodology, creating a 9-step process. The final step is “reflection”: What did you learn during this process and what would you do differently next time?

Rolling out a global initiative is never as efficient or effective as intended, and this one was no different. More than a year into developing trainers and content, monitoring progress and improving the deployment plan, we conducted a poll to determine the use of 9-step problem solving tools and training. We also conducted gemba walks to collect data on tool usage. The results? Well, I’ve had better days.

Sure, the “9 steps” were visually posted on the walls, but it looked more like wallpaper than problem solving. When we reviewed details and asked questions, it was clear the teams did not comprehend the purpose and intent behind the process: to solve problems, not alleviate symptoms. It’s often cited that 98 percent of organizations who embark on a lean journey fail, and Ingersoll Rand was determined to be in the successful 2 percent.

Like all good problem solvers, we broke down our data. We had trained approximately 2,500 people in that initial period, and approximately 300 attempted to follow a formal 9-step process. Of those 300, only 30 percent felt they had actually solved a problem. An overwhelmingly common comment was, “it seemed easy when we were learning the steps in class, but when we tried to do one on our own it was a lot harder.”

Decisions to advance problem solving

The critical role of problem solving was to move FROM firefighting TO a culture of standardization and process improvement where 60 percent or more of one’s

A3 Template Comparison Guide: Strategy and 9 Step Problem Solving (9SPS)

2 Types of A3s:	(1) Strategy A3	(2) 9 Step Problem Solving
A3 Templates	Strategy A3	9SPS A3
Application	Use for GDP, OEDP, VSAs, Strategic Programs and to shift performance or process capabilities	Use for 9SPS, Solving for issues rising from MDI, countermeasuring and to solve for abnormal performance
Major differences lie within the thinking, strategy and completion of Boxes 1-3		

Two types of templates help employees solve different problems. This comparison table guides employees on the best template to use.

time is spent on continuous improvement activities. At this point, Ingersoll Rand made four critical decisions to advance our ability to solve problems and ensure our lean operating system centered on our customers:

1. Assign a coach. We underestimated the need for newly trained personnel to have an experienced problem solver available during their first few 9-step projects. A coach serves as the designated individual who helps newly trained staff when something is not clear, and who helps stabilize things until the person feels more confident.

2. Coach signoff. Out of respect for people’s time, we added a signoff block at the end of each step. Newly trained people got a coach’s signature before moving on to the next step. This ensured people practiced problem-solving thinking, looked at things correctly and followed the process. The intent was to respect people; to avoid letting them haphazardly spend hours working on something, only to find out later they missed key elements within the step that would have helped them reach a successful conclusion. We wanted to keep people from getting frustrated and “tearing it up and starting over.” Initially, people perceived the signoff action as a process step to slow them down or create power plays with leaders or coaches. Explaining the intent of the signoff step was crucial to its success.

3. Design two templates. We implemented a companywide standard practice around two basic templates. A Strategy 9-Step template, which usually covers a year, is used for goal deployment, strategic programs and to shift performance or process capabilities. A general Problem-

Solving template, which usually covers 20 to 30 days, is used to address issues arising from countermeasures and to solve for abnormal performance. I explain it like this: If you’re on a big boat and want to get really far away but don’t know how to get there, you’ll use a Strategy template. If you’re on that boat and the steering wheel keeps breaking down with no known cause, you’ll use a general Problem-Solving template.

4. Train fewer people. We decided not to train more people than we could coach. If two people in a group were experienced problem solvers, then eight people would receive training over the next 3 to 4 months. The logic behind this decision is that everyone who is new to the process will need at least an hour of coaching per week. If coaches each oversee four new trainees, they will need to dedicate at least four hours each week over the next 3 to 4 months, which should allow each participant time to complete a couple of general Problem-Solving 9-Steps. Once one group is self-sufficient, another group goes through training. As the previous trainees become better and more experienced, they start coaching others, while continuing to grow their knowledge of the process. This approach creates more and more problem solvers. It’s a slower process, but if you get better “problem solvers”—people capable of finding and solving the root cause of a problem—then it’s worth it in the end.

Finally, Ingersoll Rand now offers a class to continue to teach our leaders how to coach problem solving. This helps to get to all of our associates involved in problem solving.

Problem solving at Ingersoll Rand has advanced tremendously, but there are

still hurdles to overcome. Sometimes associates perceive the 9-step problem-solving tool as a punishment, rather than a resource that helps them succeed in their roles and deliver for the company. This, we think, is likely a carryover effect from the lack of proper rollout early on. Also, some, if not most, leaders did not receive 9-Step Problem-Solving training themselves, yet their teams were asked to “get the 9-step done for the big meeting tomorrow.” Often, the problem had just been identified the day before, so it was more about generating a report to “survive the meeting,” verses them initiating it to solve a problem. As I said, there is always room for improvement.

Lessons learned and path forward

Regardless of where your company is on its problem-solving journey, we

can all apply the learnings and remind ourselves of the fundamental problem-solving principles.

I'll close with what I think are the most relevant lessons for all companies:

1. Start with management when instituting a new problem-solving process. They have to coach, reinforce and drive it. If they do not understand the purpose, they will undermine it, even if unintentionally.
2. Don't short-cut the experience: providing training is not enough. You have to have people to coach new learners until they build the comfort and confidence to move forward on their own.

3. Never underestimate the power of go and see in everything! Management should regularly go to the gemba and

see for themselves, then coach and teach others how to solve problems.

4. The tool is important, but the real value is developing a culture where people look to solve problems as part of their daily work and don't see it as punishment.

5. Ensure everyone knows the intent behind the changes.

Leveraging these lessons, Ingersoll Rand is striving to create a culture where all leaders are coaches and everyone is a problem solver. And that benefits employees, customers and shareholders. ●

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