The Art of Problem Solving

Why are good problem solving and root cause analysis techniques so hard to implement?

BY DOUG CATER

Ask plant managers about the most important skills in a supervisor, and they will typically rank problem-solving skills first or second. Ask the same managers how their supervisors typically operate, and most will tell you they operate in crisis or fire fighting mode. Why are good problem solving and root cause analysis techniques so hard to implement?

Most organizations claim they are too busy to develop and implement good problem solving techniques. What is ironic is that most of what they are busy doing could be described as classic fire fighting.

Making the leap from fire fighting to controlled problem solving can be extremely difficult. Accepting the short-term impact on production, and finding ways to convince the organization that you are prepared to make the commitment necessary to improve the situation, can be very painful. In a relatively short period, however, the benefits can be significant.

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What is the difference between fire fighting and problem solving? The main difference is structure. The typical approach to solving problems has individuals running from problem to problem, making snap decisions that return the offending process or machine to a "productive" level as quickly as possible. That doesn't sound like a bad idea does it? In fact, many companies reward this behaviour by promoting operators to lead hands, and then to supervisors.

Consider the exchange below and think about the behaviour it encourages.

Bob (Plant Manager): "Ron, we lost four hours production on the X1560 yesterday afternoon. That's the third time this month we've had significant downtime on that machine. What did you do with the operators during that time?"

Ron (Supervisor): "By the time I realized there was a problem, the lead hand had been working on it for almost an hour. When I got there I moved the operators over to Jack's area to help him, and called maintenance. They worked on it for a while before they figured out the linear bearing had worn out. It took them two hours to replace it. Once we got it running right again, we brought the operators back."

Bob: "Are we still going to be able to make the Anderson shipment on Monday?"

Ron: "Sure, we have a bunch in the quarantine area we can rework over the weekend."

Bob: "Didn't we have trouble with the same bearing on the X1565 last week in your department, Jack?"

Jack (Supervisor): "Yeah, but we were only down an hour. I had maintenance work on the problem over lunch and we were able to get by without replacing the bearing. They changed the mounting configuration, which allows us to run with only a minor quality problem. It's running pretty good now, we're down to one person doing rework . . . and we're still making our shipments."

On the surface it seems appropriate to restore lost throughput to "normal" as quickly as possible, but when you look deeper, there are other aspects to problem solving that are much more powerful than simply restoring throughput.

Consider the potential to identify opportunities to improve throughput, quality or cycle time. How much better off would you be if the problem did not resurface regularly? What would you save by transferring solutions from department to department, or from machine to machine, before problems occurred?

With some practice, companies can do both . . . return the offending process or machine to normal, and develop improvements that can be applied throughout the organization. An effective problem solving and root cause analysis process is the key. Organizations must establish a structured process, clear expectations, and must exhibit commitment to the process.

Here's how . . .

If we consistently repeat any process, we'll improve. If we establish the right process for problem solving, and consistently apply it, we can't help but improve.

What is the right problem solving approach? There are many, all variations on the key steps of Plan, Do, Check, Act.

Many firms avoid implementing such a process because it is difficult in the early stages, when the organization grinds to a halt trying to use the new "structured" process for every situation. This can be overcome by establishing a threshold in the early going that will limit use of the formalized version (with full documentation) to major problems — those that

exceed a certain dollar value, recur regularly, or affect significant customers.

The formal structure and sequence of activities is necessary to ensure we get to "root cause," so your lesser problems should also be tackled using the same approach, but with less documentation.

For management, the keys are commitment and setting expectations. Supervisors and lead hands must be committed enough to drive it down to the operator level. More people involved in problem solving, means more perspectives on the problem, more ideas, more potential solutions, more buy-in. You may need to adjust your compensation system to provide incentive to use the structured process. Consider appropriate rewards and recognition for participation in problem solving activities.

For both managers and supervisors to change the way their organization deals with problems, they have to ask different questions. This type of questioning can drive appropriate behaviour:

"What have you done to identify the problem and ensure it doesn't happen again next week?"

"How do you know there's not something else causing the bearings to fail?"

"Do you know if your fix has created other more serious problems?"

"Has engineering analyzed the impact of the changes to the bearing mount?"

"What have the operators learned about preventing the problem from happening, or about improving maintenance on the machines?"

"What considerations have been given to the four other machines we have, that utilize a similar design?"

"Have we changed the preventive maintenance schedule on these machines?"

"How will we know ahead of time when the bearings are about to wear out, so we can change them without lost production?"

"Have you completed a report documenting the problem and the actions that were taken to resolve the problem?"

Think of the benefits to your organization, if each time someone solved even minor problems, they took the time to prevent them from happening again, and they made sure all other affected areas or lines implemented similar solutions. Think about the extra time you'd have to do things like . . . more problem solving.

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