Corrective Action vs. Containment

Author(s):
Keith Wagoner

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Statistical process control (SPC) charts track critical process control metrics, and the data they identify can be incorporated into departmental goals. But if you hit a speed bump, you'll likely be able to trace it back to an out-of-control data point on your SPC chart. When this happens, a root cause analysis is in order. Here's how to proceed.

Understand the differences

The new procurement organization is in place. The processes have been developed; critical process control metrics have been identified and are being tracked using statistical process control (SPC) charts. Important outcome metrics have been identified and incorporated into departmental goals. Everything is sunshine. Everyone is laughing.

But all of a sudden, you hit a bump in the road. You look at the SPC chart: Sure enough, there is an out-of-control data point. You remain calm, refusing to succumb to the notion of, "When in trouble, when in doubt, run in circles, scream and shout." You do, however, admit your data is out of control and that you need help.

In a previous *eSide* article, I talked about the SPC chart, a quality tool that can help you track data. Given space limitations, I did not go into a lot of detail on how to use the tool relative to root cause analysis.

The concept of using the SPC chart as an indicator of when to conduct root cause is simple: Make a fundamental assumption that control limits have been correctly calculated. As long as the data fluctuates between the Upper Control Limit (UCL) and the Lower Control Limit (LCL), the process is exhibiting *random variation*.

Random variation, or "noise," is just that — variation that takes place from reporting period- to- reporting period as a result of the inherent variability in the process. Random variation will never necessitate the need to conduct a root cause because there is no root cause, or assignable cause, to the data movement.

Many signals generated from an SPC chart indicate that root cause analysis is in order. Two simple ones are a crossing of the UCL and LCL. As soon as this happens, actions must be taken to identify the special cause that resulted in the service level agreement (SLA) violating the UCL or LCL.

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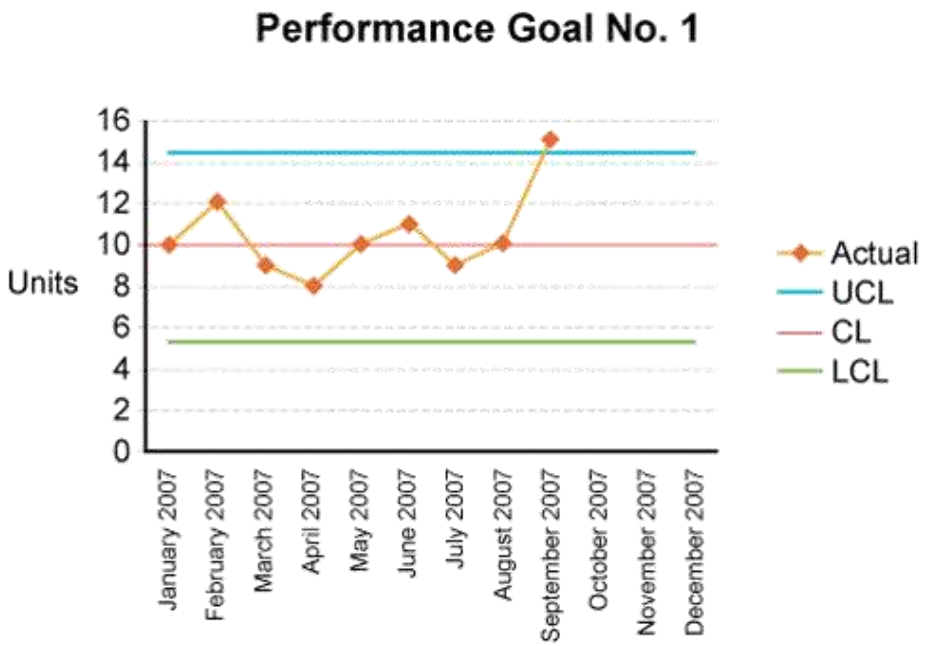

The point at which the Actual Limit (AL) crosses the Upper Control Limit (UCL) on this chart indicates an out-of-control situation. In this case, up is bad — and the root cause must be identified and eliminated.

Another SPC chart signal for root cause analysis is when a number of consecutive data points move in the same direction. For instance, seven data points moving up or down in the same direction indicate a special cause is involved and needs to be found. Another signal: seven data points on one side of the Center Line (CL) without crossing it.

The underlying principle of root cause analysis is simple: When performance is out of control in the wrong direction, you must identify and eliminate its reason. When performance is out of control in the right direction, you would do well to identify and replicate its reason.

Back in the 1980s, when Ford Motor Company's motto was "Quality is Job One," the company developed a TOPS (Team-Oriented Problem Solving), methodology. Referred to as the TOPS Eight Discipline (8D), it is a very systematic means of arriving at true root cause. Usually, this is a cross-functional team.

TOPS 8 Discipline (8D) should be used when:

- The service does not meet the SLA's requirements.
- The service delivery performance data is out of control.
- There is a gap between the current state and the documented standard.
- Internal customers require evidence of the problem's resolution.

When the aforementioned bump in the road causes your data to spin out of control, the first thing to do is define the concern and/or problem in succinct, clear verbiage. A project plan should be created for the purpose of eliminating the problem and improving the process. This plan should include scope, key activities, boundaries, responsibilities, time lines and resources. This is the first discipline: Define concern, organize and plan.

Next, the team should describe the problem or opportunity for improvement and write a problem statement in terms of the gap that exists between the "as-is" and desired states. The problem statement must be clear and focused on the specific nonconformance. In other words, it should clearly state what is wrong. The degree, magnitude and scope of the nonconformance should be captured here. The second discipline has been satisfied — describe the problem.

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With the problem noted, attention must be shifted to restoring service or containing the problem (the third discipline — restore the service or contain the problem). Typically, these are the interim actions taken to restore the previous operating condition. Many organizations make the huge mistake of stopping here, often confusing containment with corrective action. In fact, it is impossible to move from containment to corrective action. Using this process will prevent this fatal mistake.

At this point, the team is ready to start determining the root cause, the fourth discipline. This often starts by brainstorming potential causes, and then selecting which one(s) to address. Depending on the initial results, it might be necessary to revise the problem statement. Often overlooked here is the verification of the root cause; verification means that the problem can be turned on and off by the root cause. In addition to brainstorming, there are many tools to help facilitate the determination of potential root causes, such as a fishbone diagram.

A Corrective Action Plan

With the root cause identified, the team is now ready to develop a corrective action plan and satisfy the fifth discipline: decide on the optimum corrective action and plan its implementation.

Once the corrective action is ready for implementation, a pilot test should be performed to make sure the action prevents the problem from occurring. During this pilot, the corrective action's effectiveness can be evaluated. Potential improvements can be documented, and open issues can be addressed.

For corrective action verification, remove the interim stopgaps. If these can be removed and the root cause does not manifest itself, the corrective action is successful and has been verified. This takes care of the sixth discipline: implement and verify corrective action.

Another often-overlooked process is the identification of steps that can prevent its recurrence. Thoroughly evaluate the process, practice or system that allowed the root cause to occur. Regularly monitor and modify it to prevent the problem's recurrence, which is the seventh discipline.

The final discipline is the communication of the effort's success. Everyone involved should be recognized, and the effort's completion should be celebrated. This simple practice helps ensure the process' use.

As an example, my company recently trained its major telecom providers on the corrective action plan process. It was viewed as a way to move from inadequate reason for outages (RFOs) to a clearly defined, actionable process. The RFOs we had been receiving prior to this training were completely focused on containment — restoring service — and woefully missed the corrective action part of the equation.

Granted, this process might strike some as cumbersome at first glance. However, once a group gives it a try, its problem-solving benefits are immediately recognizable.

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