BREAKTHROUGH
Lean Implementation & Training Resource Publication
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6σ CONTROL PHASE

By Harold Chapman

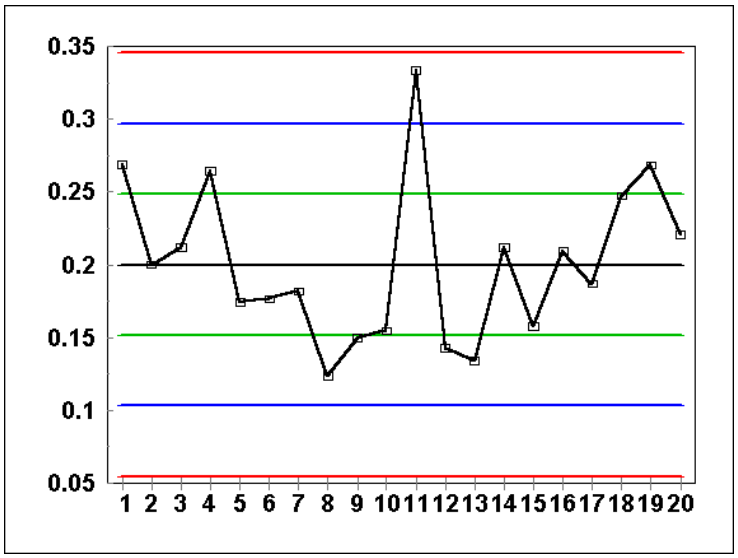
ENSURING THE FIX

Last month, we focused on the "I" in the DMAIC cycle for Six Sigma. We discussed the processes and tools used to IMPROVE the output performance of the process. In this issue, we will focus on the "C" in the DMAIC cycle, which is the CONTROL phase. In this phase our goal is to ensure the problem stays fixed and make certain that the new methods can be further improved over time. Have you ever 'fixed' a problem only to see it surface again just a few months later? We observe that the lack of sustainment of improvements (including the lack of permanent corrective actions to problems) is the number one inhibitor to DMAIC success.

Some projects will allow us to put in a fix and walk away. However, not all projects fall into this category. If there is anything certain in the world, it is change. Change will surely happen and we must respond to that change to ensure new problems don't develop over time. There are many tools used to monitor the process to detect change. The change can be in the product, parts or measurement system. In any case, as the person responsible for the area, you want to know when the change occurred and the magnitude of the change. The most common tool used to detect change in a process is Statistical Process Control (SPC).

SPC is used to monitor processes over a long period of time. Upper and Lower control limits created based on the customer's specification limits for the output of the process. These limits are plotted on a chart (See Figure 1). The output is measured on a set frequency, and the result is plotted on the chart.

Figure 1: SPC Chart



In the chart to the left, the red lines represent the customer specification limits. When a point is plotted outside of this range, the product is scrap and all products produced since the last sample are suspect and must be quarantined. In the same chart, the blue lines are the control limits. The control limits are used to correct the process before an "out of specification" event occurs.

When a point is plotted outside of the control limit range, the process is stopped and corrected before scrap product can be produced. After the process is corrected, there is another sample taken and plotted to ensure the process is stable again.

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THE CONTROL PLAN

There are other rules that can be applied to keep the process "centered." The most basic rules are listed below:

- More than 5 consecutive points above or below the center line.
- More than 5 points trending in the same direction.

Another tool used to monitor a process is the Control Plan. While improving the process there are many changes and checks that may be implemented. The control plan lists all of the checks that were implemented to control or detect issues in the process. The changes and checks will be useless if they are neglected. The control plan lists all of the checks that are crucial to process stability. The sections in a control plan are as follows:

1. That which is being measured or verified.
2. The tools that are used to take the measurement.
3. The specification to which the measurement is being compared.
4. The frequency at which the measurement is being taken.

If we control the critical areas of the process, we will be able to see changes in other parts of the process and product more readily. Thus, making it easier to correct and improve the process in the future.

The CONTROL phase of Six Sigma helps us ensure long lasting improvements in our processes. It's our chance to wrap-up what the team has been working on and allow the team to move on to other problems. This is the final phase in the traditional Six Sigma teachings. However, we would like to take it one more step and add LEVERAGE as the last step for the DMAIC cycle making it the DMAIC-L cycle. By understanding how to LEVERAGE a project, one can get more benefit with less effort in other areas of the organization. Stay tuned next month as we discuss the importance of LEVERAGE for every project that is implemented.

Spotlight – Author and Director of Engineering, Harold Chapman

Harold has earned the nickname "The Machine Whisperer" among our clients. Harold simply has not found a problem that cannot be solved and he specializes in eliminating long standing, difficult and recurring problems. He is a certified Variation Reduction Specialist and is an advisor to Six Sigma Black Belts. He has been focused on problem solving for over 14 years as an equipment designer, builder, programmer and installer, handling all aspects of the equipment procurement process. ***Contact LMSPI to meet Harold, discuss ways to accelerate your problem solving efforts and capture potential savings and profits in your organization.***

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Stay tuned! This series will continue with one more bonus issue addressing Leverage. To review the entire FREE Online Insider Archive now just click here or visit www.LMSPI.com today!

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