

Three Questions for Success

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Improvement requires a framework. We all need some way to align our efforts and focus on a specific objective. To this end I have found the following questions to be especially helpful.

1. What do you want to accomplish?

Until you have a clearly stated objective, you risk everyone running off in different directions, working on their own pet projects, and not cooperating for the common good. Whether it is a specific project with a limited scope, or the general day-to-day operations of your organization, a clearly stated purpose or objective is important to help focus the thoughts and efforts of everyone involved.

Any situation in which this question remains unanswered will rapidly deteriorate into chaos. However, merely specifying your objective will not be enough.

2. By what method will you accomplish your objective?

While it may be necessary to have a goal, merely having a goal is, by itself, not sufficient. Remember the old saying, "If wishes were horses then beggars would ride." Until you have a plan for achieving your objective, it will be nothing more than a dream.

3. How will you know when you have accomplished your objective?

If you are going to have a goal, and if you hope to move toward that goal, then you will also need some way to measure how far you have come and how far you have yet to go in reaching that goal.

Any measure you might use will vary in the normal course of events. Some months it will go up, and other months it will go down. If you do not know how to determine when a change has occurred, you will have difficulty in separating meaningless changes from a signal that you have made progress toward your goal.

Shewhart discussed these three questions in the context of making a product. He referred to them under the headings of (1) Specifications, (2) Production, and (3) Inspection.

Deming talked about these three questions in terms of (1) having a Criterion, (2) having a Test Method for determining compliance to the criterion, and (3) having a Decision Rule for interpreting the results of the test.

Regardless of the nomenclature, these three questions define the essence of how to get things done. Until we can answer the second and third questions, all of our targets, all of our goals, and all of our plans are merely wishes and hopes. To turn dreams into reality we have to have some specific method for making them come true, and some way to judge when they have come true.

In his second book, *Statistical Method from the Viewpoint of Quality Control*, Shewhart returned to the idea embodied in these three questions and showed how a process behavior chart (1) defines an Ideal, (2) provides a Method, and (3) allows us to make a Judgment.

Specifically, in Figure 1 the Natural Process Limits on an X Chart define the *process potential*. They define what a predictable process is likely to continue to produce, and they approximate what an unpredictable process can be made to produce if and when it is operated predictably. To use Shewhart's word, the Natural Process Limits define the *Ideal* of what the process can do when it is operated up to its full potential. They define what any process can accomplish.

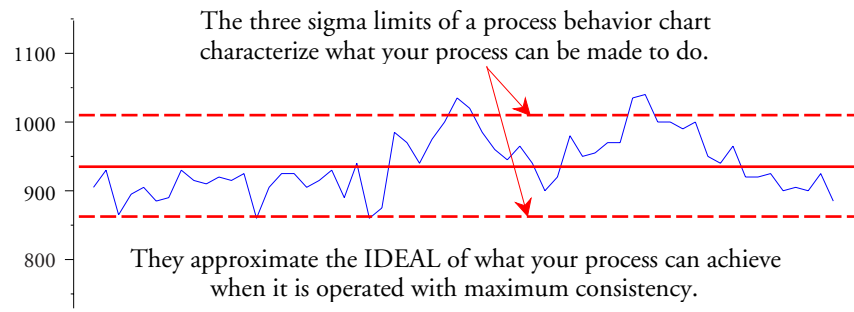


Figure 1: What Do You Want to Accomplish?

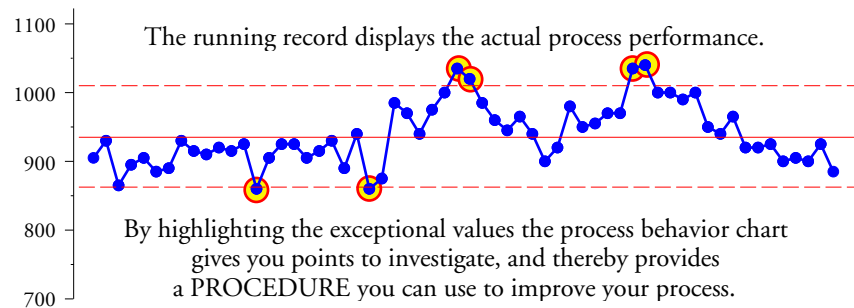


Figure 2: By What Method Will You Accomplish It?

In Figure 2 the running record of the individual values defines the actual *process performance*. Whenever a point goes outside the bounds of the Natural Process Limits it identifies a departure from the routine, a change in the process, and the presence of an Assignable Cause of exceptional variation. By identifying these points the process behavior chart provides us with a methodology for when to look for Assignable Causes. When we can identify an Assignable Cause and move it from the set of Uncontrolled Factors to the set of Controlled Factors we will be removing a significant source of variation from the product stream. By removing sources of variation from the product stream we are not merely maintaining the status quo, but are rather tightening up on the process variation and improving both the predictability of the process and the consistency of the process outcomes. So the process behavior chart gives us a *Method* for actually moving our process toward the *Ideal*.

Finally, in Figure 3, by combining both the process potential and the process performance on the same graph, the process behavior chart allows us to *Judge* how close our process is coming to operating up to its full potential. The absence of points outside the limits tells of a reasonable degree of predictability. For an unpredictable process, the number of points outside the limits and the extent to which they fall outside

the limits will quantify the degree of unpredictability.

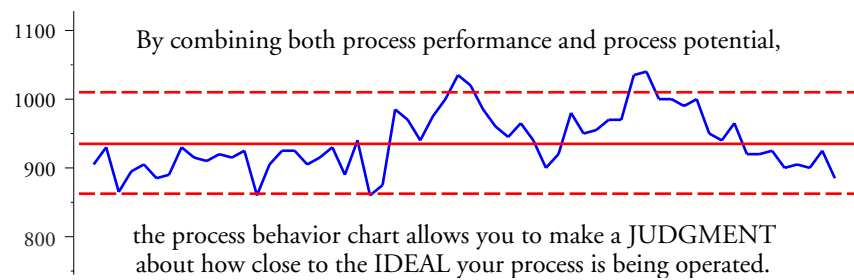


Figure 3: How Will You Know When You Have Accomplished It?

SUMMARY

The general framework defined by these three questions is sometimes referred to as an *operational definition*. As may be seen above, the process behavior chart provides us with an operational definition of how to get the most out of any process. It is a definition that you can do business with. Everything else is just wishful thinking.

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