Harry Franzheim—an HR/OD Practitioner for over 30 years—has published this newsletter to bring you careful insight into reducing costs and unlocking employee potential.

newera HR

Keeping Costs Down and Productivity Up

SPRING 2017

AT ISSUE

Variation can pop up at any time in your manufacturing process. Not knowing the difference between normal and special cause variation will lead your company to look for all the wrong answers, costing you time and money.

Variation: "The Root of All Things Evil"

HR Fact:

Why Volkswagen Cheated: Was It Variation in the Process or Corporate Culture?

The manufacturing process was not the problem for VW, it was variation in the people process:

- A mindset that tolerated breaches of rules
- A highly centralized management hierarchy that expected people to perform, no excuses
- An autocratic environment, not democratic: you do as you are told, no debate or dissent
- Culture where problems are hidden and not openly communicated to superiors

In design as in food, variety can be the spice of life. But in business processes, variety will slow you down and will confuse your customers. Neither is very good for a business. And it doesn't matter what kind of business—manufacturing, construction, warehousing, service businesses, not-for-profits, sports, you name it … variation in a process is a killer because it makes it very hard to predict an outcome.

Tolerances Are Sloppy

The problem is that the sources of variation are all around us. They are impossible to eliminate 100%. Sources of variation can include humidity, traffic, molecular size, muscle strength, respiratory rates, UV light, and on and on. Tiny sources of variation can have a significant impact on a process over time. Which is why we use tolerances. But tolerances are not our friend. Tolerances are sloppy and usually come from the naturally occurring sources of variation. They are not desirable but we put up with them because we are reasonable. But sometimes (oftentimes) our reasonableness and tolerance for sloppiness get us in trouble—tolerances are the opposite of quality!

Voice of the Customer

It is always the customer that defines the optimal value. Understanding that is critical but daunting since each customer may have different tastes and desires. Yet groups of customers or segments may share closely similar tastes and desires. Understanding what your customers want is called the Voice of the Customer (VOC).

VOC

VOICE OF THE CUSTOMER

Understanding what customers want

VOP

VOICE OF THE PROCESS

Delivering optimal value to the customer

Voice of the Process

Understanding the Voice of the Customer is critical but it is not sufficient; we also need to know what our processes are capable of delivering. The Voice of the Process (VOP) ideally will be aligned to deliver the optimal value to the customer, no more, no less.

Tampering

Not knowing the VOC and VOP is like driving using the rearview mirror only—you can see where you've been but you don't see where you are going. Understanding that our processes are capable of making "bad product" is the first step

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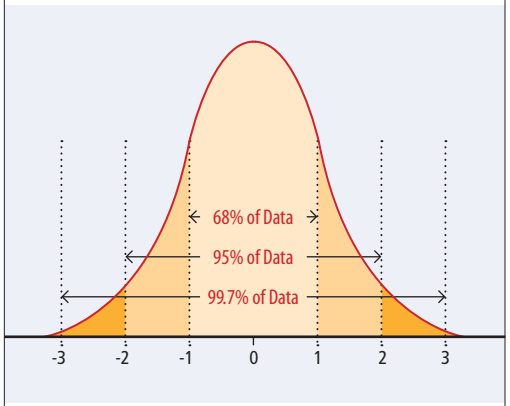
toward improving. If we leave our process alone and just simply let the process run, we will see that it mostly makes "good product." But the same process is likely to also make "bad" product. If we are continually adjusting the process to counter the fact that it is making "bad" product, we will never learn the true process capability. Worse, making an adjustment on a process without knowing its full capability is called *tampering*. Tampering makes things worse. The adjustments made will actually increase the amount of variation because each new adjustment creates a whole new system with a new, unknown process capability. So it is best to learn process capability by letting the process run to a natural course.

Normal Distribution Curve

Leave the process alone and a chart of the results will show the typical "bell curve" or a normal distribution curve.



In this drawing, assume that zero is the optimal target. But the customer will tolerate +1 and -1 and everything in between. That is the VOC in this case. Keep in mind that zero is optimal so any movement left or right of zero will come at some economic cost. But, using the same graph, the VOP is +2 and -2 and everything in between. If the VOP is outside of the VOC we have to scrap some product because it is not only not optimal, it is beyond what the customer will tolerate. That's a "bad" process. On the other hand, reverse the VOP and VOC numbers and suddenly this process will make products that will meet the customer requirements 100% of the time and even have a little buffer for something to go wrong. That's a great process! When one tampers with the process and makes an adjustment because the process is making bad product, the whole distribution curve moves with the adjustment. One might get lucky for a while, but sooner than later, the nonconforming products will show up with a vengeance!

Control Charts

Variation exists in everything. Effective leadership, however, requires the ability to know the difference between normally occurring variation and special cause variation. **Normal variation** is all the little things that come from the process itself; they are inherent within the process and are always interacting with each other. **Special cause variation** comes from outside of the system or the process and consists of random events that may or may never exist again. Normal variation impacts a process randomly; there is no pattern to predict. We can use statistical process control charts not only to distinguish process capability but also to know what common cause variation is and what is special cause variation. Knowing the difference is a crucial leadership component. If we overreact to common cause variation and demand answers and a quick resolution, it will drive the organization insane. Common cause variation is coming from the process itself and it is not easily identified. Similarly, not reacting to special cause variation is equally bad since we miss an opportunity to learn. Remember that special cause variation is outside of the process or system and can be easily identified and eliminated. Control charts allow us to see what is noise and what is a meaningful signal. Leaders that cannot distinguish between the two spend a lot of time pounding their chests demanding answers to questions that cannot be answered.

An example of a special cause variation would be getting struck by a lightning bolt. It is truly unique and will probably never happen again. Problem-solving something like that is a low-yield strategy. An example of common cause variation is the amount of spice on a potato chip. Each potato chip will be different and will absorb the spice differently. The "spicing" procedure is not a "perfect" system and sometimes more is delivered to the chip, sometimes less. The spice itself may vary in its granularity—some bigger, some smaller. All of those (and hundreds more) are common to the process and are always present within the system of spicing a potato chip. The good news is that there are problem-solving tools that can be learned and deployed to lessen the damaging effects of common cause variation.

For effective leadership and for continuous process improvement it is necessary to understand the kinds and the sources of variation so that we lead an appropriate improvement strategy.

Leadership and Predictability

Leaders must build processes and systems that can reliably and predictably deliver services and products to the customer at a cost (and therefore price) that is sustainable. Leaders must always focus first on quality.

Deming Chain Reaction Diagram

Quality is cheap. When quality improves, costs go down. When costs go down, prices can go down as well. With high-quality products or services at low prices, your markets will expand, creating greater demand for your goods or services. This will, in turn, create and sustain jobs. It's the only way to guarantee jobs for everyone! ne

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