

Simple Metrics For Process Improvement

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It seems contrary to modern business practice not to have a sophisticated dashboard of business metrics to communicate and visualize the health of our organization. We especially like to observe that our process improvement programs and methods are paying off.

The problem is that sometimes the complexity of gathering the data and turning it into meaningful measures and metrics for those dashboards seems to take more effort than fixing our problems. In other words, our metrics become problems that we now need to fix.

In my opinion, the best metrics are simple. If it takes any effort to explain a metric, or to run raw measurement data through an elaborate set of calculations, or if we can't immediately perceive how that metric relates to the health of our business or efficiency of our process, then the metric is probably just a waste of time.

There are sections of on-line and physical bookstore shelves full of resources on business and process metrics. I don't want to rehash those. I just want to share two of my favorite metrics because they seem to be both simple and informative. More importantly, they drive desired behavior, uncorrupted, in addition to providing meaningful insight.

Let's talk a moment about that word, "uncorrupted." My personal greatest frustration with metrics is the phenomenon whereby our peers and team members deliberately or inadvertently find ways to achieve the metric and the rewards that come with it, but fail to incorporate the correct or desired behavior. Instead they adopt undesirable behavior. It drives me nuts!

Therefore, my favorite metrics are the ones that seem difficult to misinterpret or to

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circumvent. The two I'll explain here meet this desire well. They are both good metrics regardless of our chosen or developed process improvement methodology, but I'll describe one as it fits very well with the Lean methodology and one as it fits with Six Sigma methods.

First, let's talk about a great metric that fits particularly well with Lean. It's time. That's all; simply time. I learned this one from a business owner that ran his whole business with extraordinary efficiency based on time as the business' primary metric. Of course, that business' major competitive advantage was rapid order turn-around. They could serve customers faster than anyone else, no wonder.

Start by measuring two times. Measure time that a single part is in production, and measure time from order to ship. I'll describe each with a little more definition. The reason that both times are useful is that they give you a simple comparison between office processes that enable production and actual production.

The key to the production time measure is to identify the first material component to enter the production process and measure how long it takes from the time it is sent to the first process step until it is converted into a completed product and ready to ship. The other measure encompasses how much time is wasted getting the order into production or getting the finished product out the door. I say, "wasted," because the ideal measure of that time is for it to be identical to the production time.

Time is a great Lean metric, in particular, because it naturally drives the right and desired Lean behaviors. In an effort to minimize the time something sits in production, we abhor it to be waiting for a process step, sitting as some form of Work-In-Process (WIP). We don't want material sitting in inventory waiting for a special order to put it to use, so we drive ourselves to design out special materials or components, to maximize common parts and processes.

Time compels us not to use multi-function equipment that requires set-up between changes in function. Instead it drives us to create simple, specialized equipment that does not create a delay to "get ready" for incoming work. Likewise, time compels us to design out process steps, excess motion, travel, and when a defect drives rework or a line stop, it really messes up our metric so we establish methods to make sure it doesn't happen.

As you see, simply measuring time will naturally drive much of the Lean behavior we desire. It's only one metric. My mentor from that business I mentioned believed heart and soul that time equals money and it showed in the way his business operated. Because they drove that metric nearly explicit of any other, the axiom became true.

Time is a very simple measure that is hard to manipulate, easy to understand, and readily equates to process efficiency and business health. It's hard to beat.

The other metric I like is cost of purchased parts. I especially like this one as a Six Sigma metric.

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The enemy of Six Sigma is variation. Any metric we incorporate in a Six Sigma culture should not only communicate a raw or average value, but a distribution of variation. Process control and health is determined by how precisely reliable a process is.

In my experience, especially in organizations with dubious Six Sigma success or fledgling Six Sigma programs, the easiest way to get a pulse of process control and variation is to measure the variation in piece part and material order costs.

If the cost of commonly used components and materials never changes over the course of a year either someone is fudging the measurement, the business is dead, or the business is wonderfully under control. This metric is a little tricky and it takes some experimentation to find the right components to track.

There will be some pieces or material that are in consistent demand and will yield less feedback than other parts. The parts we want to target are the ones that end up with variable order quantities, expedite fees, changes in cost because multiple vendors charge differently, or because contracts are inconsistently negotiated.

The reasons that part and material costs we order can be revealing about process control are many. Expedite fees are very revealing. We know that some process in purchasing, planning, our production or our product development function is out of control when we must expedite incoming material.

Other variation can reveal challenges with selecting suppliers, managing volume, variation in production rates, waste from process problems or defects, supplier quality, supplier delivery, or suppliers that simply can't meet requirements or demand. Much of what affects our ability to consistently produce quality output comes from our input and supply (process improvement class day 1).

The only way for piece part costs to remain very consistent over time is for our internal processes and our associations with suppliers to be stable and in control. It takes a great deal of process improvement to achieve that stability. Also, focusing on the challenges that affect part and material cost, throughout the process or value stream keeps us focused on real, meaningful business improvement.

I will provide a caveat. While true piece part cost is easy to calculate and difficult to fudge, it's easy to select the most stable examples to report instead of the least stable. Also, it can be a little labor intensive to collect the data. The best method I've found is to record the piece part cost of each order at the time of the order for specifically identified components. This requires some stringent discipline.

The data must be collected from every order of that piece part or your measure of the variation will be inaccurate. Also, a corruption of the intent of the measure occurs when teams decide it is easier to produce different part numbers for the same component ordered from different suppliers. This will make it easy for variation data to be missed and it drives production team and MRP system operators crazy, causing numerous issues you will then need to solve.

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If we can defend against those or other ways that the cost of incoming parts measure can break down, it really does become a fairly easy way to get a quick indicator of how a great many processes are, or are not, working together.

Of course, time works very well as a Six Sigma metric, and part costs work excellently as a Lean metric (especially if your accounting system can truly tally the real cost of each part in process in your plant). I offered them in particular contexts for the sake of discussion and example. They work well regardless of what methodology you use.

They work well because they are simple to collect and understand and to communicate. It's easy to see how they reflect process efficiency and business health. Most importantly, our efforts to optimize those metrics focus our efforts on real, meaningful challenges within the business.

If my favorites just don't excite you, there is a way to simplify your existing metrics. Pull up the mathematical formulas for each one and lay them out together. Find the common factors that appear in most or all of them. Turn that common factor into the metric instead. That way, you will impact all of your current metrics by chasing only a few, simpler, measures.

Take a look at your metrics. Do the ones you track meet the criteria? If not, simplify them. Look for the lowest common denominator used in the majority of your existing metric calculations and make that your metric instead. If it shows up in all of your metrics, then tracking them and trying to optimize them will undoubtedly impact the metrics you are struggling to make sense of, and will do so in a much more direct and less confusing way.

Stay wise, friends.

If you like what you just read, find more of Alan's thoughts at www.bizwizwithin.com [1]

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