



Lean Manufacturing

Keep Your Machine Shop Competitive with Value Stream Mapping

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Research continues to show that leading industrial metal-cutting companies are focused on continuous improvement. For example, according to the latest *Top Shop benchmarking survey* from *Modern Machine Shop* magazine, “top shops” (defined as the top 20 percent of the 350 shops that were surveyed) are more likely to apply lean-manufacturing methodologies than other shops. They are also more likely to have cultures of continuous improvement. Specifically, the survey revealed that 62 percent of top shops have adopted formal continuous improvement programs compared to only 46 percent of other shops.

The survey also found that shops are implementing a variety of improvement tools to stay competitive. One tool in particular that is widely used is value-stream mapping (VSM). In fact, the survey found that almost 40 percent of top shops are using this lean methodology compared to only 20 percent of other shops.

As explained in the eBook, *Five Performance-Boosting Best Practices for your Industrial Metal-Cutting Organization*, VSM is a “paper and pencil” tool that helps managers visualize and understand the flow of material and information as a product makes its way through the value stream. The map is a representation of the flow of materials from supplier to customer through your organization, as well as the flow of information that support processes as well. According to *iSixSigma*, this can be especially helpful when working to reduce cycle time because managers gain insight into both the decision-making and the process flows.

Although it is easy to become overwhelmed by the terminology, an archived *article from Ryder* outlines VSM in five simple steps:

1. **Identify product.** Determine what product or product groups you will follow. Focus on one product at a time and start with the highest volumes.
2. **Identify Current Flow.** Once you’ve defined the scope, the next step is to create a “current state map,” or a visual representation of how the process (or processes) in the warehouse is operating at the present moment. Key data points such as units per month, shipping frequency/schedules, hours of operations (available time), number of shifts worked, or any pertinent information around customer demand should be gathered before beginning the current state.
3. **Observe.** Get on the floor and walk the entire process through step-by-step. Take notes and compile data such as inventory, cycle times, and number of operators.

4. **Make the map.** Literally map out the process you just witnessed by drawing it out on a board. Include the data you collected and place inventory numbers under each step in the process. This will identify your bottlenecks.
5. **Create (and implement) a plan.** Now that you know what and where your process improvements are, choose one or two to focus and improve on in a set amount of time. Once those are complete, you can prioritize the other bottlenecks to improve lead times.

One of the biggest misconceptions about VSM is that it is only applicable to high-volume shops. Like many other lean tools, VSM can usually be adapted to fit high-mix, low-volume machine shops. In an interview with Fabtech, Mike Osterling, a senior consultant with Osterling Consulting, Inc., explains:

“Let’s begin by pointing out that the front office processes (order taking and management) for low-volume, high-mix production processes are much more complex than the front office processes for high-volume low-mix environments – thereby meaning those value streams are in much greater need of VSM alignment! So we need to start those VSMs at the receipt of order (or at receipt of a request for quote), and we need to include leaders from those areas in the actual VSM activity. In some cases we can identify VS product families if there are products that are different, but they go through common production processes. In those situations, there may be opportunities to create areas of flow (or mini-flow).”

Mike Osterling

Senior Consultant with Osterling Consulting

In an industry driven on speed and schedules, taking a few days to complete VSM or other improvement exercises may seem like wasted time. However, managers need to consider the price of not taking the time to focus on continuous improvement. Investing in tools like VSM can help your shop operate more efficiently, reduce lead time, improve customer service, and as research suggests, help you keep up with your competitors.

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