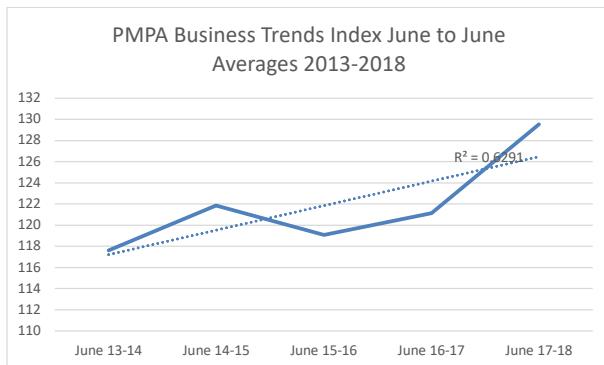




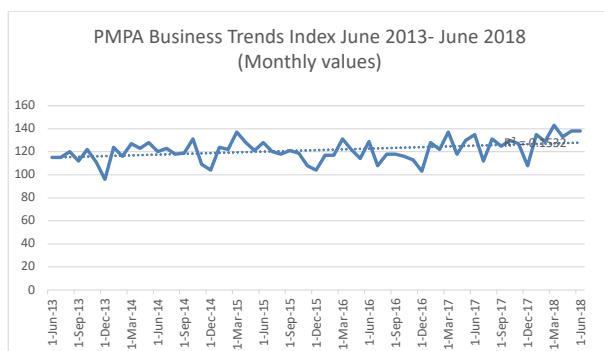
Change in Demand: Time to Change Your Thinking

By Miles Free – Director of Industry Research and Technology

According to our analysis of the PMPA Business Trends Sales Index, the demand for our products has shifted steadily upwards in the market.



However, for the past five years, when looking only at our month-to-month changes, we saw no compelling change in our demand.



By not seeing that the market has changed, we miss the signal that this market requires us to make changes in our methods of providing parts. Our monthly incremental view has kept us from seeing the larger transformation of the market demand that we serve.

Cycle Time

Minimizing cycle time has been the predominant production philosophy in the screw machining business since before the Eisenhower administration. It is genuinely easy to understand, even for the college educated: "If time on our machines is really what we are selling, then making parts with less time is the goal." Minimizing cycle time will maximize the production of parts for the time that we are operating. Simple logic.

Except that by running at bleeding edge cycle times, we reduce our process capability, drive our tools beyond their optimum and thus require an operator to maintain surveillance and frequent inspections. In addition, these high

In today's market where our shops are running at or near capacity, are we doing enough to assure uptime of our production processes?

speeds require us to plan more frequent tool adjustments and changes and deal with far more frequent downtime, because the operation is not truly optimized for productivity, just for speed.

What if by increasing our cycle times a modest amount, we could bring our tooling and control of built-up edge, and thus dimensional conformance, into a much higher level of statistical control? What if by reducing speeds we could extend the life of our tooling by a significant percentage? What if by running at more modest, less demanding speeds, we could actually allow our machines to run lightly attended for a couple of hours after the end of the shift, sequestering the parts for confirmation of compliance, but getting 25 percent (or more) production time than the normal shift?

Continues on page 19

Continued from page 17

Change in Demand: Time to Change Your Thinking

Optimized Process by Optimizing Material and Tooling

Material. When I first came into our industry as a supplier of steel, I was fascinated by what I have come to call, “the fastest cycle time—cheapest material paradox.”

The paradox was that my customers, the machine shops, emphasized how important having the fastest cycle times was for them. However, when I offered them a freer cutting, faster cutting material (at a slightly higher cost per pound), they abandoned their demand for fastest cycle times in favor of what I called the “lowest price per pound” heresy. Purchasing agents were the high priests of the business in those days, and they were rewarded for lowering the costs of the steel and tools they purchased (as opposed to being rewarded for their role in increasing the throughput of their shop).

Today, with shops at or near capacity, lead times extending and material availability even more of a challenge, it is critical for the purchasing agent to be a partner in optimizing shop performance, instead of being the “finder of the cheap stuff for the operations guys to figure out how to run.”

As that young steel guy, I wrote a computer program that was able to determine the cost impacts of choosing a more expensive, more machinable grade on the total cost-per-thousand parts produced. (Spoiler alert: it reduced the cost substantially on most parts!) By evaluating not just the raw material cost (the cost of the steel), but also by calculating the change in the cost to actually machine the part (including improved efficiency and uptime, increased speed [SFM] or feed rates [IPR], etc.) from the different candidate grade. The math was compelling, but it remained a difficult case to make, unacceptable to purchasing agents whose bonus depended on ever-lower costs of inputs. Yet it often was convincing to the shop owner, who understood that more parts at the end of the shift was the goal, or the operations manager, who understood that ‘good machinability’ was whatever didn’t shut his machines down for unplanned outages.

Tooling. It was not just about the material. The choice of tooling also fell under the low-cost incentive to purchasing. I remember the first time I saw a titanium nitride-coated, circular-form tool. It must have weighed 10 pounds. It was being used on a multi-spindle screw machine at a government arsenal to make projectile blanks (talk about high-volume production) out of free machining steel. I asked, “Why on earth are you using such an expensive tool to make these screw machine parts out of free-cutting steel? Certainly, this is over-engineered?” The reply was priceless, “Young man, if you knew how much we are billing the U.S. government for an hour of machine time, you would do everything possible to assure machine uptime too.” In today’s market, where our shops are running at or near capacity, are we doing enough to assure uptime of our production processes? How many of us err in the opposite direction, going for less expensive tooling instead

of assuring that we have the correct tool to make the job trouble free and a “steady runner?”

Minimized Cycle Time or Optimized Process?

Which point of view is in control of your shop today? Is your shop’s philosophy minimized cycle times? Or do you prefer to run no-surprise optimized processes?

How much could a 25 percent or more increase in production time with virtually no increase in labor be worth to your shop? You can run the numbers. Alternatively, you could do what some of your sharpest competitors are doing—slow down, optimize for process (not for lowest cost inputs) and run lightly attended.



In a recent straw poll of PMPA member contract manufacturing shops, over two-thirds of respondents reported some lightly attended jobs. In many cases, these jobs were reengineered to slower cycle times, but higher CPK, assuring that they would get the most advantage from their lightly attended operations.

Is having a low cycle time important? We can all agree that what we sell is the time on our machines. We can agree that having a low cycle time looks like one way to maximize the cash flow from the time we are selling.

There is another way. That way is to assure more uptime, higher process capability and the ability to add additional hours with virtually no labor cost to increase the number of sellable parts produced in our shop each day. This is accomplished by optimizing our process.

Are you ruled by cycle time? With today’s technologies for machine monitoring, tool status verification, automatic bar loading and more robust tools, substrates and coatings, we think you have another option. The two graphs shared previously should convince you that perhaps now might be a good time to change your thinking.