



BY JOHN OSKIN

When Planning Rates Fail Us

Nearly every manufacturer employs a methodology to maintain or improve operations performance. Yet, even when they are conscientious about performance improvement, obstacles sometimes still come up. When standard rates and planning rates in the ERP system are out of date or not accurately set, it becomes difficult to achieve optimum performance.



Production runs finish sooner or later than expected, idle lines or backlogs negatively affect inventory, labor costs rise unreasonably and customer service deteriorates.

On the other hand, accurate and timely analysis of machine and process capability validates existing rates and provides necessary adjustments so the organization can operate at maximum efficiency. A new methodology makes it easy.

ACCURATE PLANNING RATES

Studies show that 30 percent of SKUs in a typical manufacturing facility have at least a 10 percent error between the current planning rate used and the ideal, “desired” planning rate based on demonstrated performance. Most manufacturers aren’t even aware of this problem.

When rates are too low, capacity has been underestimated and production runs finish sooner than expected. This can lead to unexploited capacity or unnecessarily high inventory levels. When rates are too high, capacity has been overestimated and production runs take longer than expected, which leads to poor schedule adherence levels. Overtime may be required to recover, shipments have to be expedited, orders have to be rescheduled and overall customer service levels will drop.

When production efficiencies continue to demonstrate higher than 105 percent, rates may have been set on budget standards. Less than 95 percent suggests a review of ideal machine speed is needed.

That’s why frequent, detailed analyses – reviewed more often than



annually or even quarterly – are necessary to ensure accurate standard and planning rates.

Furthermore, the true measure of overall equipment effectiveness should take all rate standards into account for supporting continuous improvement, or should be integrated with schedule attainment to yield better planning. The result of accurate rate planning is improved schedule adherence and reduced inventory.

THE DISCONNECT

Since businesses are not static, planning rates should not be static, either. Formal improvement initiatives such as lean, Six Sigma and operational excellence can help drive sustainable change. As improvements are made and throughput increases over time, outdated performance levels can lead to rates that are understated and improvements that are not fully exploited.

The best time to get planning rates right is with the introduction of a new ERP system. Unfortunately, most companies miss that opportunity. The task of establishing planning rates is handed off from the planning group to the production group, which provides its best estimate without any real understanding of how the rates are used and without conducting a robust analysis.

Just one area that has suffered from the disconnect between production and planning is inventory. At one time, the plant manager was accountable for inventory, but today's trend is to decouple inventory management from plant operations. This has led to higher inventory levels than are required or unreasonable safety stock that is based on the plant's performance.

Another problem is that planning rates are adjusted only once a year at best. Even proactive manufacturers that update them quarterly rely on information and methods that are often out of date. They fail to ask these specific questions:

- + How much data should I analyze? Is last week's data good enough, or do I need three to six months of history information?
- + How frequently did I run this SKU? Did

I run the SKU long enough to develop a profile with confidence?

- + Do I understand the variability in SKU performance based on downtime?
- + Do I understand how special cause variation and common cause variation affect rate performance?

What is needed is a new methodology to establish accurate planning rates.

IMPROVING RATES

The methodology recommended involves evaluation of SKU performance based on best-demonstrated performance, which depends on measuring factory operations in real time with minute-to-minute production data. It further requires that instances of special-cause downtime are identified and excluded from consideration, so that accurate planning rates can be established with a focus on predictable, common-cause downtime.

The methodology follows these steps:

Step 1: Review data sufficiency.

Step 2: Analyze minute-by-minute production data over the time horizon from the data sufficiency thresholds (usually three months minimum, although some low-volume SKUs may require a year's worth of data). Also:

- + Look for data anomalies that would exclude an SKU from consideration.
- + Don't apply one-size-fits-all rate-analysis, but rather look at the SKU differences.
- + Recommend rates based on historical performance, eliminating special-cause considerations.

With at least 90 days of data, this methodology provides a comparison of ideal and actual production hours. Rates also are evaluated in terms of best production hour achieved and current standard rates. Then, based on minimum thresholds of run time and run frequency, product SKUs are evaluated for recommended rates. The result is a profile of the SKU families with adjusted rates and "exception SKUs," which require further analysis.

In addition, the methodology entails constructing a top- and bottom-quartile analysis of the data. Such a study can be


extremely effective for analyzing large volumes of SKUs. Although it is difficult to analyze trends of SKUs in the thousands or even hundreds, the commonality in the families of SKUs can be understood more easily by grouping them into top quartile and bottom quartile. Variability is the enemy of production – closing the variability gap provides more consistent production planning.

Enterprise manufacturing intelligence (EMI) software coupled with sales and operations planning (S&OP) technology supplies the highly granular, real-time data required for successful application of the methodology outlined above. It allows manufacturing professionals to address the financial and scheduling implications that cripple performance and sabotage the continuous improvement effort.

IMMEDIATE RESULTS

When one manufacturer's 150 SKUs were analyzed, 80 percent had at least a 5 percent error, and 40 percent had at least a 10 percent error. Not surprisingly, the company was meeting its schedules only 63.2 percent of the time. That meant the company's orders were fulfilled late, shipments had to be expedited and customer service suffered.

When the company implemented the new methodology, the results included an immediate boost in schedule adherence to 81.5 percent. The manufacturer was able to maintain that level and customer service improved dramatically, as well. No longer crippled by outdated and inaccurate information, it could achieve peak performance.

While many manufacturers already are executing Six Sigma, lean, total productive maintenance or other improvement strategies, there's a better way to sustain performance gains. That is by implementing real-time, highly granular data supplied by EMI plus S&OP technology. 

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