At-a-Glance

- Engineering, accounting, and sales have traditionally been at odds with manufacturing.
- SOP can help eliminate the conflict by focusing disciplines and measurements on accurate forecasts and standard lead times.

By Randall Schaefer, CPIM

I've worked in manufacturing since the 1960s. Back then, engineering lived in an ivory tower and threw its elegant designs down for us factory types to manage as best we could. It was usually too late to make the promised shipping date, but that didn't matter since sales made delivery commitments without any regard to manufacturing lead time or available capacity. Accounting provided endless reports measuring manufacturing's failures and shortcomings while offering nothing to help us perform better. Manufacturing expedited, complained, and wondered if we could ever work with engineering, accounting, and sales.

The MRP crusade of the 1970s brought us together with engineering. The promise of MRP was too great to ignore. Engineering was told to synchronize their BOMs with manufacturing and consider available inventory before making changes. This did not sit well with old-timers like the VP of engineering I worked with, who quit rather than yield to manufacturing's demand that BOMs be structured so as to be useful for production. Today, engineers who inhabit an ivory tower are rare.

The 1980s brought us JIT. Suddenly the accountant's efficiency statistics, utilization reports, amortization of setups, and other articles of faith were considered counterproductive. Accountants often seem temperamentally suited to criticizing others from afar, so being the target of criticism was a new and

Sales and Manufacturing: natural enemies?

Not if a revitalized SOP effort has anything to say about it.

Jon Evans

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horrifying experience for them. They were forced to develop new factory performance measurements with our input. Today, legacy accounting measurements still exist in companies struggling to make substantive changes. But these old measurements are becoming as rare as the accountants who still believe in them.

So how about the sales group? Unfortunately, there is no coming together history for sales and manufacturing. Even today, the two are more likely to conflict than cooperate. But, for awhile, it looked like things might be different.

SOP measures up

I WAS FIRST EXPOSED to sales and operations planning (SOP) about 1980. It is a series of techniques intended to eliminate the age-old conflict between sales and manufacturing. It is based on the common sense notion that each group needs to perform its job with an eye to the limitations of the other group and with a determination to reduce its own limitations. Some companies succeeded impressively but, too often, the results were short lived. Most companies never got it right. SOP had its moment in the sun—academics sold books and consultants prospered—then it faded.

But the premise behind SOP is sound. Why have we not succeeded with it the way we did with MRP and JIT? The problem is lack of performance measurements at the proper level. The key SOP measurement is usually on-time shipping performance because it arguably is the only value embraced by both sales and manufacturing. But if we're just measuring on-time shipping performance, we don't know whether we have succeeded or failed until after the fact. We need to measure lower level, fundamental disciplines that will inevitably yield those desired results.

The fundamental things apply

WHAT ARE THE FUNDAMENTAL disciplines manufacturing requires from sales?

- For make-to-stock products, sales must provide an accurate forecast.
- For make-to-order products, sales must provide adequate lead times.

What are the fundamental disciplines sales requires from manufacturing?

- For make-to-stock products, manufacturing must produce to the forecast.
- For make-to-order products, manufacturing must maintain a standard lead time.

SOP measurements should support these disciplines above all others, but they seldom do. Lip service may be given, but no disciplines are enforced. Sales may provide a forecast, but seldom is anyone held accountable for its accuracy. An accurate forecast allows for acceptable deviations. If the monthly forecast is A, the forecast is accurate if actual demand is no greater than B percent over or C percent under. The B value should be geared to manufacturing's ability to respond quickly. The C value should be geared to preventing layoffs of skilled workers.

Many believe it unreasonable to hold anyone accountable because forecasting is inherently impossible. That is a self-fulfilling statement. Unless we attach forecast accuracy to someone's annual performance review, we will never know how accurate our forecasts can be. I have worked with several new forecasting tools made available during the last few years. None will provide slam-dunk accuracy, but they will give you better results than were possible with older, traditional forecasting methods. Chances are those responsible for forecasting in your company have not even investigated these new techniques. Why should they if they're not held accountable?

Enforcing lead times

TYPICALLY, SALES IS WILLING to live with a standard lead time until a shorter one is required to make a sale. Then they insist that manufacturing "be flexible." Somehow sales learned that flexibility is good, so they use it as a club to beat manufacturing into agreeing to compressed lead times. They defend themselves by pointing out that manufacturing can usually produce the order in that shortened amount of time. So, what's the problem? By compressing the lead time for a hot order, we miss the ship dates on the routine ones. I find it acceptable for a company to make a conscious decision that customer A is more important than customer B. We will allow customer B's order to ship late to assure customer A's order ships on time. But seldom is this a conscious decision. Typically we expedite the heck out of A, congratulate ourselves for ship-

ping it on time, and are surprised to learn orders for B, C, and D were shipped late. Standard lead times must be enforced.

But all the sins are not on the sales side. Manufacturing will often under-produce the forecast in order to hold down inventory. Manufacturing must build the forecast—period. Manufacturing should be held accountable only for component inventories and finished goods in excess of the forecast. Sales should be held accountable for finished goods inventory equal to their forecast.

And manufacturing does not enforce standard lead times for make-to-order products. They act like they expect sales to provide a level flow of new orders so the factory workload remains constant. This is unrealistic. But too often, manufacturing has no plan for reacting to a reasonable increase in orders without increasing the lead time.

There are a lot of disciplines that can help your SOP effort. If your company is struggling with SOP as most are, you can focus your disciplines and measurements on accurate forecasts and standard lead times. Here are some of the disciplines I have used successfully.

The lead times must also be competitive in the marketplace. Then hold manufacturing to those lead times.

Forecast related disciplines

HOLD SALES ACCOUNTABLE FOR continuous improvement in forecast accuracy. Don't allow bonuses, raises, or any positive reinforcement for exceeding the sales forecast by more than X percent. Any reward will demonstrate that management doesn't take the forecast seriously. Assign inventory responsibility for finished goods to sales.

Hold manufacturing accountable for producing to the forecast. Assign them inventory responsibility for leftover components and finished goods in excess of the forecast. Hold them accountable for having a plan in place that will enable them to respond to an X percent increase in the forecast within a reasonable amount of time. The value of X may vary by product.

The goal is to make sales take the forecast seriously and make manufacturing sufficiently flexible to accommodate a predefined maximum increase in a predefined response time. Also, hold manufacturing accountable for reducing the lead times for forecasted products. The shorter the lead times, the shorter the forecast horizon can be. The shorter the planning horizon, the more accurate the forecasts are likely to be.

Standard lead-time related disciplines

HOLD SALES ACCOUNTABLE FOR enforcing the standard lead time for each product that is made-to-order. Don't allow bonuses, raises, or any positive reinforcement for orders accepted inside the product's lead time. The lead times must be established based on *typical* volumes. You might be able to get any one piece through the shop in two days, but two days is probably not a reasonable lead time if the factory typically has 10,000 pieces flowing through. The standard lead times should contain enough slack so everything does not have to run perfectly to be completed within its lead time.

The lead times must also be competitive in the marketplace. Then hold manufacturing to those lead times. I favor queue controls to assure no job waits too long. Synchronizing queue maximums with standard lead times is a fairly intuitive exercise. Control the size of the queues and you will generally complete production within the standard lead time. And, finally, manufacturing must be assigned the task of reducing the lead times. Give them six months, for example, to develop a plan for reducing by X percent the lead times on the four (or five or six) products that can do you the most good in the marketplace. Top management can then decide whether the money, manpower, and time investment is worth the benefit.

Do the same with the next several products. The goal is to ship every order on time by discouraging exceptions to the standard lead time. True exceptions are accepted but not rewarded. Over time, exceptions will become less necessary as manufacturing reduces the standard lead time.

If a company disciplines and measures forecasts and standard lead times, it will eventually have time to address other SOP concerns like new product introductions, obsolescence management, things that get pushed to the back burner because we are expediting, finding fault, or deciding what excuse we will give the customer for the latest missed shipment. ◆

Randall Schaefer, CPIM, is an industrial philosopher who has served 30-plus years in various manufacturing management positions. He has a degree in Philosophy from Wisconsin State–Stevens Point. Randall sits on the Advisory Board for APICS—The Performance Advantage *magazine and edits the Lessons Learned column. He is a regular APICS speaker, writer, and conference presenter. Randall is currently the manufacturing practices advisor for Manufacturing Action Group, Inc. (MAGI).*