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# *SPEED TO MARKET*

*A Newsletter for  
Job Shops—Niche Manufacturers—Focused Distribution Systems  
Published by Delta Dynamics Incorporated  
March 2005*

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**Feature Article**

## You Can't Put Ten Pounds of Anything in a Five Pound Bag

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One of the most critical problems we constantly encounter in job shops is the inability to ship on time. This is not for want of trying as many shops go through extensive (and expensive) expediting and rescheduling efforts in an attempt to meet delivery commitments and keep customers happy. But even with the great effort expended, on-time ship performance tends to remain substantially below acceptable levels month in and month out. In addition, the cost of expediting and rescheduling orders in production is very costly, and generally unknown. There is no line on a company's income statement that identifies the "cost of jumping though our behinds to meet unrealistic ship

dates," and in the worst case scenario, unreliable performance will cause angry customers to take their business elsewhere.

But late shipments is not the problem, it is a symptom of a more fundamental set of underlying organizational dynamics, and ways of thinking that are never adequately tackled and resolved because they are essentially invisible to most managers. In order to understand why it seems to be so difficult to consistently ship on time, let's start with the basics.

**Back to Basics:** A fundamental difference between job shops and volume production operations is the impact of customer demand on the production schedule. In volume operations, production is protected from the variability of short-term market fluctuations by finished goods inventories. During high volume periods, filling orders from inventories satisfies excess demand. During lower volume periods, these inventories are replenished. Thus, "building ahead" when demand is lower enables a more regular rate of production or "level-loading" of the shop. In this way, scheduled production remains relatively stable as finished goods inventories act as a buffer or shock absorber between the ups and downs of demand and production on the floor.

This is not the case in job shops with no finished goods inventories. (There are some exceptions to this...if you are a contract manufacturer with blanket orders, or are making a proprietary product that has a base of common components you can build ahead.) However, the typical job shop cannot build ahead because future demand is undefined, and cannot be known until an order is received. In addition to a highly variable order volume, job shops are subject to changes even after the order is booked (i.e., design changes, materials specifications, quantities, delivery dates, and other factors). These types of changes are transmitted directly to the shop floor without the benefit of any buffer or shock absorber in the system. This is why scheduling in a job shop tends to be such a huge problem compared to the more stable mass production world with its standard products and level-loaded production.

There is not much you can do about this—it comes with the territory. Customers will make changes, and shops will seek to accommodate them by making changes in production schedules, and rearranging priorities at the last minute. However, one thing that job shops can do is to avoid trying to cram 10 pounds of work into a 5-pound bag. To paraphrase Will Rogers, who never met a man he didn't like, many job shops never met an order they didn't like either. Orders are booked whether or not there is adequate capacity to complete them by the promised date, and this is common in shops that consistently ship late.

Late shipments are brought about by a combination of factors—a disconnect between sales and production; work-in-process not well managed; and a failure to actively manage capacity.

**The Sales-Production Disconnect:** Typically, sales and production functions operate separately. Sales promises customers whatever delivery they want in order to make the sale, regardless of the work backlog and available capacity. This behavior is typically embedded in the culture of many job shops...sales sells and it's up to production to deliver. If capacity is oversold, it's production's problem.

Not all the blame rests on the sales department, however. We can be equally critical of production because they typically fail to manage and measure capacity, so the sales department doesn't really know if they are overselling or not, or by how much. The problem of an organizational disconnect between sales and production is compounded by myopic metrics that measure the sales department on revenues generated and hit rates, and measure production by on-time delivery. In most companies, there are no combined measures that encourage sales and production to work together more effectively.

But if we push even further into this problem of organization disconnects, we will find they are caused by an underlying paradigm disability. That is, most managers see their organizations as a bunch of separate functions tied together by the lines and boxes of an organization chart. This is the typical "organization as chart" paradigm with its pyramid structure and command and control mentality. In these cases, interdependencies among functions are barely recognized, much less designed into the organization.

On the other hand, organizations that understand *Speed to Market*, and have learned how to manage the quotes to cash business process will be in a much better position to make the fundamental changes necessary to improve their on time ship performance...and to sustain that improvement over time. In the horizontal managed quotes to cash process model for order driven businesses we are using, everyone is responsible for the performance of the process as a whole, not just their piece of it. This means that sales has as much responsibility for on time delivery as production, and this should be one of the metrics for measuring the sales department's performance.

**Interdependencies in the Quotes to Cash Process:** The interdependencies among sales, scheduling, capacity management, and production need to be recognized. For example, if the capacity does not exist to produce what a customer orders within the time specified, then the salesperson can't sell it. Or if he does sell it, he has to create it. And the way capacity is created when it is fully booked is by rescheduling orders in the queue to make room for the new order that was just sold. Want to shove something ahead of other customers? Then you have to create the space for it by negotiating revised deliver dates with customers already in the queue to see what can be moved, or if partial shipments can be made, or if there is some other option. This requires a different level of sales involvement with customers, closer coordination with production, and a lot closer attention to detail and responsibility for customer service. In the *Speed to Market* system, you can't throw a problem over the wall and expect somebody else to fix it for you.

Of course, the sales department will need to know how much capacity is available on a week-by-week basis, how much is sold, and how much remains to be sold. Put sales in the position of loading the shop (which they do anyway by virtue of delivery dates promised to customers). Give them the information they need. Measure their performance by on time ship percentages, as well as by hit rates and estimated margins, and you will start to see on time shipping performance improve.

**The Critical Role of Capacity:** We can make a step forward in dealing with this most debilitating problem of consistently shipping late by recognizing that you are really selling capacity in a job shop, not items. And when you sell capacity you do not have, or can't create (capacity is not fixed; it is elastic and can be expanded and contracted to some extent), you simultaneously create all manner of problems and excess costs. However, once you learn to measure and manage capacity, scheduling is much easier, and on time ship performance will improve. It is important to recognize that most shops do not actively manage capacity other than to work overtime or on weekends. Late shipments come about when you are trying to do the impossible which is to produce more than you can produce in a given time period, even after you have stretched capacity to its limit. The problem is simple: you can't put ten pounds of anything in a five-pound bag. The solution is not so simple.

Elsewhere we have written about the need to expand and contract capacity to match the roller coaster demand that is characteristic of order-driven businesses. *Do You Know How to Play the Accordion? Managing Capacity in a Job Shop Environment* (Forming & Fabricating Magazine, March 2003) offers a number of strategies for expanding and contracting capacity. Request it from us if you have not seen it.

**Managing Work in Process:** There are great differences among shops when it comes to control over work in process, and these differences depend upon a variety of factors. These include such things as the nature of the work itself (e.g., stamping dies vs. screw machine products), the size of the items being produced, the number of orders on the floor at one time, the individuality and complexity of the routings for individual orders, the average length of time an order is in production, the degree of engineering required, the availability of raw materials, the amount of work done outside the shop (e.g., castings, heat treating, powder coating), the adequacy of the information system, machine utilization rates, how supervisors have been trained, how work is pulled or pushed through the shop, how machine backlogs are staged, and much more. This is far too complex a subject for this article, but it is important to point out that the way in which work on the floor is managed (or not managed) can contribute to chronic late shipments.

**In sum**, it's important to recognize that constantly shipping late is a symptom of a more fundamental set of underlying organizational dynamics, and ways of thinking that are never adequately tackled and resolved because they are essentially invisible. These include overselling capacity, not managing work in process adequately, and relying on an organization chart model that ignores the importance of interdependencies between sales, scheduling, capacity management, and production. Improving on-time ship performance in your shop requires tackling these underlying dynamics, and making substantial changes in your organization. If you have already adopted the *Speed to Market* horizontal management model and related concepts, you will be in a much better position deal with this very expensive and damaging condition.

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**Need help to improve your on time ship performance? Give us a call at 248-333-0482 for a free candid discussion of your situation.**

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# A Course of Course

## *Advanced Techniques for Job Shop Management*

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We have been looking for an effective way to deliver performance improvement programming to smaller job shops for quite some time. We know from our experience that many companies are generally reluctant to engage the assistance of outside resources for any number of reasons—lack of time, think it costs too much, disbelief in consultants, think they can do it themselves, ego, fear, and more. All of this makes it very difficult to gain entrée, which is the first step in helping owners and managers deal with the difficult problems and issues of the job shop world.

There is an old saying about riding a horse in the direction it's going, so rather than fight all the reasons why not, we thought it might be better to create a program that would support a do-it-yourself approach. That is, to provide the education, tools, and structured format necessary to solve real problems and achieve measurable results in an ongoing business, without the full-time, on-site commitment of external resources that are generally required to bring about organizational change and improvement.

At the same time, we were mindful of the criticisms that are often leveled at workshops and seminar type programs—that is, the lack of transferability to the back home environment. No matter how good the seminar or workshop content may be, the problem many companies face is the conflict between the time and effort it takes to implement change, and the day-to-day demands of running the business. Less than adequate implementation undermines any effort, and the new technology or methods are blamed rather than

poor implementation. Recognizing this, we knew it was important to build a way to implement change into the program, rather than leave it up to chance or good intentions.

We also built in a session on how to construct and use a non-bureaucratic continuous improvement system. Participants will actually design and implement a Weekly Performance Report specifically for their business using Delta Dynamics' proprietary software. This powerful tool provides management with real-time information, which enables corrective actions to be taken quickly and more effectively. Plus it provides all the high-level management information required to stay on top of a business on one page, in an easy to understand format with graphs to trend the results of continuous improvement efforts.

Finally, we recognized the fact that many companies are struggling with difficult-to-solve problems and issues that consume a great deal of management's attention, as well as erode profitability. Many of these problems are ongoing and seem to defy solutions (e.g., scheduling, poor on-time ship performance, too-long lead times). So, rather than offer a canned program to solve standard problems, we followed our motto, "*Client Driven Solutions*" and allowed participants to choose their own high-priority problems to solve. Although there is some risk involved (compared to solving standard problems that have neat solutions), we are confident in our ability to work with participants to solve, or certainly to ameliorate, these types of challenging problems.

The result of this line of thinking and development is a special course we are calling *Advanced Techniques for Job Shop Management* that is based on these criteria:

- First, it is reasonably priced. Three people can attend for the price of one for a typical seminar or workshop.
- It educates participants in *Speed to Market* concepts and methods and shows how to use a horizontal management model to manage a job shop business process.
- It provides the tools, perspective, and training required to streamline and simplify business processes with the goal of eliminating waste and cutting lead time
- It incorporates our very own version of a Weekly Performance Report which is customized for each company during the course, and provides real-time data feedback critical for managing the job shop business process
- It enables participants to choose to address their most pressing problems and issues
- It provides expert assistance in framing problems and implementing solutions
- It sets baseline performance indices and measures improvement in financial and operational terms against this base

Needless to say, this is an extremely ambitious agenda. *Advanced Techniques for Job Shop Management* is composed of four, three-hour sessions, delivered weekly over the course of a month with "back home" implementation to ensure the lessons learned are properly applied. It is intended for owners, managers, and other key people who have the responsibility and authority to ensure implementation takes place. The strategy of cutting lead time by eliminating delays and waste in the quotes to cash process is used to drive performance and profit improvement.

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If you are in the Detroit metro area and interested in attending, call Ray Kennedy at 248-288-5840 for price and availability. You can see a detailed course description with a session-by-session agenda here.

<http://www.deltadynamicsinc.com/Services/Course/Course.htm>

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## Performance Management Software

Can you answer these questions about your business in 5 minutes or less?

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- How many prospective new customers were contacted last week? Year to date? How many sales dollars have come from new customers compared to existing customers this year?
  - If your sales continue to run at the current rate, will you be ahead or behind at the end of the year? By how much?
  - How many RFQ's have you received year to date? How many were bid? How many were won? How many dollars were bid and won? What is your hit rate in number of quotes and dollars quoted?
  - What is your current order backlog in dollars? Hours? How does this compare to historical averages? Is your backlog trending up or down?
  - How many hours of rework did the shop waste last week? Year to date? If you continue to run at the current level, what will be the total cost of rework at the end of the year? For example, a \$1500 weekly rework problem is actually an annual \$78,000 profit drain.
  - What was your labor productivity last week? Year to date? If you improve by 5%, how much is that worth to you annually?
  - What percentage of your orders were shipped on time? Is your on-time ship performance improving or deteriorating? By what percent?
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Don't know? Think this information is important to have every week?  
Ask how you can implement our *Weekly Performance Report* in your company quickly and easily.

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