
SPEED TO MARKET

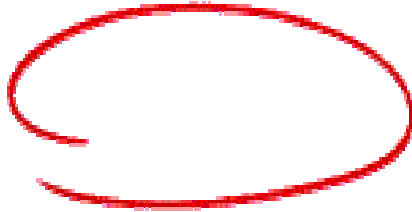
A Newsletter for
Job Shops–Niche Manufacturers–Focused Distribution Systems

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Feature Article

Are You Closing the Loop?



If you are not closing the loop, you may be leaking profits faster than the Exxon Valdez leaked oil. Readers of the book, [*Speed to Market: Lean Manufacturing for Job Shops*](#), will recall that *closing the loop* refers to the often neglected yet critical practice of comparing estimated to actual costs on a job-by-job basis. The purpose of closing the loop is to determine why actual costs are higher (or lower) than estimated in order to determine reasons for variances, and then to use this information to drive continuous improvement.

Typical questions to ask during a job review include: *Were materials costs higher than estimated? Did we have more scrap than expected? Was the actual shop floor routing different from the one used in estimating? Did we forget to include a processing step? Were our labor costs higher than estimated? Why?*

We've had the wisdom of closing the loop reinforced during a recent project in a family-owned business that specializes in precision machining and fabricating tools, fixtures, prototypes, and similar engineered products for the auto industry. In reviewing their [Weekly Performance Report](#), we discovered that approximately 445 of the 2000+ jobs shipped during the year exceeded the original estimate, and of these, 273 actually exceeded the price charged to the customer.

Why is this so? Because this company did not have the practice of closing the loop installed in a disciplined fashion, and therefore losses went on and on, undetected from week-to-week, until they amounted to well over \$100,000.00 which is a huge profit leak for a small business.

Of course, we designed and installed a procedure for closing the loop and trained people to detect variances and take corrective action. Below are the basic elements of this process. You can use this as a guide for developing your own procedure for closing the loop, or for tuning up your current process.

A Procedure for Closing the Loop: First, jobs shipped every day are monitored to determine whether the actual cost exceeded the estimated cost by a significant amount. "Significant" is a judgment call on the reviewer's part. This could be a high percentage and low dollar amount, or a low percentage and a high dollar amount. This is done every day rather than once a week because the trail will get cold. People will forget what happened to cause the variance when you go to investigate.

Note: The exact method you use to compare estimated to actual costs will depend on the software you are using. Most commercial software for job shops makes it easy to perform this operation. However, if your software does not have this capability, an alternative is to require operators to log their actual times for each process step on the router. This makes the comparison relatively easy to accomplish, assuming you have the estimated times on the router as well. (See pages 72-76 in [Speed to Market](#) for a more complete description of this method.)

In addition to looking at the total estimated to actual costs, the reviewer should also look at individual process step variances. For example, a job may come in under estimate, but have one process step that is missing or grossly underestimated. These instances need to be flagged and investigated as well as total job costs.

Once a job has been flagged for a variance analysis, an information package is put together that includes: a) the traveler; b) a detailed cost report for that job; and c) prints. In the procedure we designed, this package was prepared for the estimator who was designated as the principal investigator.

At this point, the estimator analyzes the information to determine why the actual cost varied from the estimate. Reasons could include factors like rework, a missing operation, materials costs higher than estimated, a faulty estimate of the time required for a specific operation, and so forth.

Note: It is equally important to capture and analyze estimated costs that are higher than actual costs because this means you are essentially overcharging, and may be losing business as a result with too-high quotes.

Once the estimator completes his analysis, the following record is created.

- Description of the problem and what caused it.
- Corrective action to be taken to prevent the problem from recurring in the future. This recommendation could be a system redesign, policy or procedure change, training, correcting data in the estimating database, or some other action that will reduce the occurrence of similar problems in the future.
- Sign off once the corrective action has been implemented.

Jobs that have been red flagged, along with the estimator's corrective action recommendations, are reviewed each week during the Weekly Performance Review meeting. The estimator's recommendations are implemented as appropriate. Implementation assignments are recorded on the *Action Needed Log*, which is an integral part of the *Weekly Performance Report* meeting process. (See Chapter 6, Continuous Improvement, pages 83-106 in [Speed to Market](#) for details.)

Trends graphed on the *Weekly Performance Report* are monitored weekly to make sure the number of jobs coming in over estimate is declining, and the dollar amount over estimate is decreasing.

Note: Four metrics on the *Weekly Performance Report* are related to closing the loop:

- The number of jobs where the actual cost is greater than the estimated cost
- The total dollar amount for those jobs where the actual cost is greater than the estimated cost
- The number of jobs where the actual cost is greater than the price charged the customer
- The total dollar amount of those jobs where the actual cost is greater than the price charged the customer

Relevant Section of the Weekly Performance Report

Performance Measures				
Week #	52			
Week Ending Date	12/31/04	Average	YTD	Annual
	Metric	Week	Cumulative	Run Rate
Actual Cost Over Estimate	#	9	137	445
Actual Cost Over Estimate	\$	\$ 1,809	\$ 28,939	\$ 94,050
Actual Cost Over Price	#	5	84	273
Actual Cost Over Price	\$	\$ 697	\$ 11,148	\$ 36,232

Closing the loop is one of the most important and often neglected practices in job shops and similar order-driven businesses. As you can see from this example, failure to pay attention to variances between estimated and actual costs can result in dramatic profit losses. These can be avoided or lessened by closing the loop as a continuous improvement routine in your company.

In Your Face Metrics



Readers may recall the article, [A Towering Achievement](#), in the Fall 2004 issue of the *Speed to Market Newsletter*. It is reprinted here for your convenience, along with an update that describes what happened when performance indicators became clearly visible.

[Superion, Inc.](#) designs and manufactures quality hard metal cutting tools and industrial knives for global markets in its high tech facility in Xenia, Ohio. On a recent visit to deliver a Speed to Market training program for cutting lead time, I toured the floor with Superion's President Al Choiniere, and noticed a large number of empty trays in their shipping department. These trays are used to transport work-in-process from one operation to the next until the work is completed and shipped. I mentioned to Al that it might be a good idea to remove the trays from sight because they represented a clear signal to the workforce that the backlog was down. A dwindling backlog typically leads to production people stretching out the available work, which then has a negative impact on costs and productivity. A couple of days later I received this email from Al:

Vince, do you recall the towers of empty trays in our shipping department? By Friday afternoon (after you left), we had accumulated three towers at least 10-feet high!

At first, I thought about what you said about the shop floor guys slowing down knowing that there isn't much on the floor. I looked at hiding the trays, but then I thought, what a great idea it would be to put all the empties in the sales department. Three towers 10-feet tall with a note to the sales department "What are you doing to fill the trays TODAY?"

I did this Sunday so the impact would hit everyone first thing Monday morning. Even before our sales team arrived, the shop had seen what I did. It was electrifying! The shop knew sales would have to do something about all those empties.

By Tuesday afternoon one tower was gone. As of this morning, we have one tower left, about 6-feet high. Our sales department said they are committed to having all trays filled by tomorrow!

I have advised our shipping department that no more than 15 empty trays are allowed in the shop at any time. Any trays over that are to be returned to sales. What a positive visual tool this has turned out to be!

Update. Another note from Al Choiniere. *Vince...Since our sales team filled the towers of empty trays, no more than 20 trays are held in the shipping department at any time. Sales are up about 15%, lead times have been reduced from 6~7 weeks to 4~5 weeks, and our service level has been in the 90 percentile for the first time in our history!*

Our sales team attributed the towers of empty trays to poor service and late deliveries. Our manufacturing team responded with better on-time deliveries, forcing a critical change in the way we operate our business.

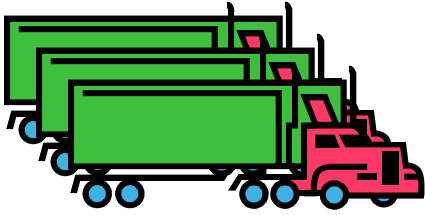
This change would not be possible without better communication between our customers, sales, and manufacturing. The team is coming together with a strong emphasis on “doing what we say we’ll do”...but now it’s everyone’s commitment.

I believe no one wishes to see those empty trays return. Our new visual tools are incoming sales, daily shipments, and on time delivery scores.

Analysis: Who would think such a “little thing” like moving empty work-in-process carriers from the floor to the sales department would produce such dramatic results? But when you analyze the underlying dynamics, a couple of things become clear. One is that fewer trays on the floor means that work has to go through faster because there is less opportunity for it to sit around without being processed. Fewer available trays also reduces cherry picking.

Second, more work is being pushed into the front end of the manufacturing process because sales must now fill the trays being deposited on their doorstep. There is a clear, visual indication of sales performance (compared to a traditional sales report with a bunch of numbers that has limited visibility). The sales department cannot have empty trays hanging around because it will look like they are not doing their job. Empty trays are an “in your face” metric. (Recall the reason for suggesting removing the trays from the floor in the first place was because towers of empty trays represented a lack of incoming work, which could then cause operators to stretch out the work they have.)

And finally, it seems like a little internal competition has taken hold. Nobody wants to look like they are screwing the pooch. This is a good example of the kinds of improvements that can be achieved when *Speed to Market* concepts and principles are applied in make-to-order environments. It should also be pointed out that it doesn’t always take large, expensive programs to produce results. Sometimes a “little thing” will change the dynamics of an operation and produce a big payoff as it did in Superior’s case. It is also important to recognize that the change described here was part of a broader *Speed to Market* performance improvement effort that was initiated in the summer of 2001, and has been ongoing...it just didn’t fall out of the sky.



Another example of an *in your face metric* comes from a build to stock manufacturing company we worked with some time ago. This company made their own items (hand tools), as well as purchased items from other manufacturers for redistribution. Our mission was to improve the forecasting and flow of products in order to reduce finished goods inventories. After we designed a new system, aligned the

organization, modified purchasing rules, and changed forecasting algorithms, the chairman of the company asked, “Does this mean the three trailers sitting in our yard full of products we can’t cram in the warehouse will disappear!” And of course, this was a perfect *in your face metric* that would soon tell the tale whether our work was effective and would produce the desired result. (Which of course it did!)

Look around your organization and see where you can create and use these powerful indicators of performance we are calling *in your face metrics*. Send examples to us at ddilink@aol.com and we’ll share them with the 2500 readers of the *Speed to Market Newsletter* by publishing them in future issues.

An Update on a Course of Course

Advanced Techniques for Job Shop Management

In the last issue of the *Speed to Market Newsletter*, we talked about developing a more effective way to deliver performance improvement programming to smaller job shops, and decided to offer a course that would support a do-it-yourself approach. This course, *Advanced Techniques for Job Shop Management*, was designed 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.

We have completed the first “beta” version of this course with nine people from two companies here in the Detroit Metro area. In addition to designing and installing a *Weekly Performance Report* in each company, participant teams worked on methods for improving capacity management, aligning pricing with costs, and improving business processes. Participants’ evaluations and comments were very favorable (*Thank you so very much! You really got us thinking and on track!*). A few questions from the course evaluation are indicative.

Were the topics presented applicable to your work?

Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
56%	44%			

Were your individual questions/problems discussed to your satisfaction?

Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
67%	22%	11%		

Do you feel you have gained new skills and knowledge that will help you improve your job performance?

Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
44%	56%			

Do you think the course was good value for the time and money invested?

Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
22%	78%			

Would you recommend the course to others?

Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
33%	67%			

We recognized that four, three-hour sessions, delivered weekly over the course of a month with “back home” implementation to ensure the lessons learned are properly applied was an extremely ambitious agenda, and this turned out to be the major criticism of the course...we were trying to do too much in too short a time.

Was the course well paced?

Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
11%	44%	22%	22%	

We modified future offerings based on this feedback. You can see the new [Advanced Techniques for Job Shop Management course description](#) on our website.

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

We are still working on the best way to take this program on the road. If you are in the Michigan area and interested in attending, call Ray Kennedy at 248-288-5840 for price and availability.

Need help finding and fixing profit leaks in your company? Give us a call at 248-333-0482 for a candid discussion of your situation.

[Frequently Asked Questions & Problems We Can Solve](#)

<http://www.deltadynamicsinc.com/Think%20Tank/Individual/faq's.htm>

[Take this Free Survey: Is This Your Shop?](#)

http://www.deltadynamicsinc.com/Think%20Tank/Individual/your_shop.htm

The only thing worse than training employees and having them leave is not training employees and having them stay. Zig Ziglar

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