

Network2015 Preview Issue

# SUPPLYHOUSE

## TIMES

OCTOBER 2015

[www.SupplyHT.com](http://www.SupplyHT.com)

# HOME COOKING

ORGANIC GROWTH FUELS  
CENTRAL ARIZONA SUPPLY.



Official Publication of the American Supply Association

A **bnp** PUBLICATION  
media

Brandon Smith (left) and Jeremy Smith  
of ASA member Central Arizona Supply

# GUEST EDITORIAL

BY RICK MORRIS • rmorris@thrivetech.com.



**RICK MORRIS** is a Certified Supply Chain Professional and founder of Thrive Technologies ([www.thrivetech.com](http://www.thrivetech.com)), a provider of inventory optimization systems to SKU-intensive companies. He can be reached at 770/222-8599, ext. 106 or at [rmorris@thrivetech.com](mailto:rmorris@thrivetech.com).

## Measuring vendor lead times

**As a distribution company, the reliability of your vendors has a large impact on your inventory.** There are two basic impacts from fluctuations in a vendor's lead time to you.

- 1) If a vendor's delivery is much later than anticipated, they can cause you to lose sales due to you running out of stock.
- 2) On the other hand, to protect against these late shipments your buyers probably carry extra-time supply for that unreliable vendor as "insurance."

Most companies I talk to inherently know this and look for ways to measure their vendor lead-time performance. In this article I will discuss one simple method to calculate and "dollarize" these impacts using data you should be able to extract from your ERP system. I have seen companies — armed with this information — gain the leverage to successfully negotiate better terms with their vendors.

Here's the bottom line: By understanding which vendors are costing you money due to inconsistent lead-time performance and by working with them to improve it, you can: 1) Cut inventory; and 2) Increase sales from reduced out-of-stocks.



What kind of inventory reduction is possible? Dr. Barry Lawrence of Texas A&M writes in his book "Optimizing Distributor Profitability" that by using the standard safety stock formula in most inventory management textbooks, a 10% reduction in lead-time volatility yields an average inventory reduction of 3.8%. So a distributor with \$20 million in inventory with lead-time deviation of 10 days can cut its inventory by about \$1.5 million if it can cut that deviation by only two days!

### The reliability of vendors has a large impact on inventory.

What's the potential for revenue increase? Our experience is distributors lose at least 10% of their annual revenues in lost sales from out-of-stocks. By measuring lead-time deviation and providing feedback to key vendors you can cut down on late shipments, adding 2 or 3 points to your top line. For a \$100-million distributor, that's \$2 to \$3 million in found sales.

#### COST OF LEAD-TIME VARIABILITY

So how do you measure the cost of a vendor's lead-time performance? For the purpose of this article, we will use the amount of surplus inventory you carry in order to come up with a dollar cost of vendor performance. It's difficult for most companies to calculate their true lost sales and even more difficult to attribute those lost sales to a vendor's late shipment. So we won't worry about the lost sales cost for now even though we all know that a vendor's late shipment can cause us lost sales.

Fortunately, estimating the surplus insurance inventory is much easier. If your ERP or replenishment system



calculates the lead-time deviation by vendor in days, you can start with that. Lead times can obviously be different by item for the same vendor, and if you want to be more precise you can weight lead times by item to calculate the weighted vendor lead time. But to keep things simple for now, let's use a general lead time and deviation for the vendor.

Other helpful bits of data in this analysis are the vendors' quoted or planned lead times, lead-time forecasts (if you can get them), lead-time deviations, low lead times and high lead times. Import that data into a spreadsheet. See Figure 1 for an example.

Figure 1

	A	B	C	D	E	F	G
1	Vendor Number	Stock Location	Plan Leadtime	Leadtime Forecast	LT Deviation	Low LT	High LT
2	Vendor 1	DC	30	27	19.705862	8	76
3	Vendor 2	DC	10	26	24.260256	8	76
4	Vendor 3	DC	15	27	24.601512	9	90
5	Vendor 4	DC	5	11	30.569138	8	97

If you cannot get the lead-time deviation from your ERP system, you can calculate it yourself. I would recommend you use the standard deviation

function (STDEV) in Microsoft Excel for our purposes of measuring vendor performance in days around a mean lead time. See Figure 2.

Figure 2

J	K	L	M	N	O	P	Q	R
Lead Times (in days)								
101	84	14	11	15	12	6	9	76
38.5393	LT Deviation (see formula above)							

Depending on the volume of POs you cut to that vendor, you may have to pick different timeframes for each vendor. I have used nine lead times in the example in Figure 2, but I would try to use at least that many to get a meaningful dataset. That might only be a timeframe of 90 days for a high-volume vendor, or 1 year for a lower-volume one. If possible, I would not use lead times more than a year old because they may not be as relevant to current performance.

Distribution software that **adapts to your** changing **business needs**

Great relationships drive business success. Your relationship with your distribution software is no exception. Built for your industry, Epicor distribution software is simple to use and offers the visionary technology needed to support your growing business at every stage.

Discover software that meets the demands of your distribution business.

**EPICOR**  
Business Inspired™

Distribution Software | ERP | SCM | CRM | BI | HCM | Financials | Inventory Control | WMS

epicor.com

Copyright © 2015 Epicor Software Corporation. Epicor and Business Inspired are trademarks of Epicor Software Corporation, registered in the United States and certain other countries.

# StrongArm™

» Bracketing System

“Incredibly strong and fast”



CTS LockBlock™



PEX Bend LockBlock™



Shower WallNut™ LockBlock™

- Incredibly strong
- Versatile
- Fast
- Superior VALUE

» Find Out More  
[strongarm.siuoxchief.com](http://strongarm.siuoxchief.com)



## MONTHLY COLUMN

### GUEST EDITORIAL

Now that we have the lead-time deviation, we need to add a cost element to make it more useful. To do that, we will need to calculate the daily cost of goods sold for that vendor.

By multiplying the lead-time deviation by your daily COGS for that vendor, we will have an estimate of how much additional inventory you should be carrying to cover your vendor's inconsistent delivery. Here's how we do that.

Calculate the average daily COGS for the vendor. If your ERP system will tell you the COGS per vendor for a certain timeframe, you can start with that. If not, take the units sold for all the items you buy from vendor ACME over a reasonable period of time. Let's use the last 90 days. You might want to use the last 6 months or a year for vendors where you have less sales volume.

Now multiply the units sold by their average unit cost to get COGS. For example, if your COGS for all the items you buy from vendor ACME over the last 3 months is \$900,000, then divide that by 90 days. Your average daily COGS is \$10,000. We will use calendar days here rather than business days since most people think of lead times in calendar days.

Using the daily COGS for ACME of \$10,000 a day, let's say the lead-time deviation for ACME is 10 days. In other words, their quoted lead time is 30 days but the deviation is 10 days longer or shorter.

Multiply the daily COGS of \$10,000 x 10-day lead-time deviation = \$100,000. This is how much extra inventory you should be carrying as insurance against lost sales due to ACME's lead-time swings.

For clarity purposes, you carry inventory to address various areas besides lead-time deviation. For example, you should hold a certain amount of inventory to cover demand volatility (i.e. safety stock). You also should

carry inventory to cover the vendor lead time and your order cycle (i.e. how frequently you order from the vendor). But the \$100,000 of inventory in the example above is ADDITIONAL INVENTORY you should be carrying specifically to cover the inconsistency of their lead times.

Now you can use this knowledge to provide feedback to your vendors and to let them know you will be monitoring it going forward. You also can use this cost of vendor performance to net down the profits you make selling the vendor's products. Just multiply an inventory annual carrying cost percentage (e.g. 20%) against the additional inventory (eg. \$100,000) to quantify a cost to you (eg. \$20,000) of the vendor's lead-time deviation per year.

#### MONITOR YOUR VENDOR PERFORMANCE

Once you have run through these calculations, you should save the spreadsheet. I would recommend recalculating the lead-time deviations once a quarter to monitor vendor performance/improvement and to track trends over time. A vendor may be reliable on its lead times for a while but for various reasons can start to become increasingly erratic.

For vendors who have the highest lead-time deviation cost but are key vendors for your business, you might offer to provide them with your projected purchases of their products over the next three or six months.

Because they can now plan better, they should be able to commit to better lead-time performance. Over time, the lead-time deviation can be included in a vendor's overall "scorecard." Using the method described in this article, you now have a way to monitor their performance and improve your bottom line. 📈