

# Five Things You Can Do This Week to Reduce Inventory

By Fred Tolbert, Principal, Southeast Demand Solutions

Why do so few companies actively work to reduce inventory? Sure, many organizations have implemented powerful supply chain solutions that support more efficient business processes and better collaboration. Many have also developed reliable processes for planning and managing their current inventory. But not enough companies show a passion for heading into the future with significantly less inventory than they have today.

There seems to be a variety of reasons for this reluctance to reduce inventory. These reasons may be:

**Priorities.** In many companies, there's a notion that customer service trumps inventory reduction. Some supply chain executives insist on keeping a little extra inventory on the shelf for when their customers may want it. In other words, customer service metrics—such as line fill rate—are more important to them than metrics such as inventory turnover or days' supply of inventory.

**Policy-related.** There are times when adding more inventory seems like the only sensible course of action. For example, you've probably heard sales reps say, "My customer said they would buy more of our product if we kept more of it in stock." It's tough to argue with that—especially if you don't have a good stocking policy and it's unclear who in your company actually "owns" the inventory. Should inventory levels be determined by the sales reps who actually maintain customer relationships, or by supply chain planners who have expertise in this area?

**Cultural.** Among supply chain professionals, there's a time-honored tradition of blaming the sales forecast for excess inventory. Manufacturing may say, "We make what the supply chain guys forecast. If they would just give us a better forecast, we could reduce inventory." But passing the buck to another department always makes me suspect that some companies do not have a culture of really working to make things better.

Regardless of the perceived causes of excess inventory, one thing is clear: You can reduce inventory while maintaining high levels of customer service.

It’s not hard to get started. In fact, there are **five things you can do this week** to begin reducing your inventory:

<p><b>1</b></p>  <p>Set a Goal to Reduce Inventory</p>	<p><b>2</b></p>  <p>Develop a Safety Stock Strategy</p>	<p><b>3</b></p>  <p>Reduce High-Side Forecast Bias</p>	<p><b>4</b></p>  <p>Reduce Stocking Locations</p>	<p><b>5</b></p>  <p>Spin the “A’s”</p>
---	--	---	--	---

## 1. Set a Goal to Reduce Inventory



We’ve all heard the warning, “If you don’t measure it, you won’t improve it.” But what good is a measurement without a goal? Setting a goal is an essential first step towards reducing inventory—and you don’t even need new software or expensive consulting services to get started. Simply set a goal such as “Reduce overall company inventory dollars by 10% by year end,” or “Increase inventory turns of the consumer product category by one-half turn.”

It’s amazing what having a goal will do to initiate action. Your planners already know how to manage inventory. Once you’ve defined priorities for your business, you can let your planners do their work. They can begin addressing inventory levels that have gradually crept up due to factors such as the ones we discussed earlier.

Throughout my many client engagements, the best example I’ve seen of inventory reduction goal setting was at Encompass Group in McDonough, Georgia. Executive management challenged the inventory management team to reduce inventory by 25%—with a stretch goal of 30% over the latest fiscal year—all while maintaining a 95% customer service level. This directive resulted in the creation of Project 17, so named because it was a 17-month inventory reduction program. Using Demand Solutions software, ERP software, and Lean Manufacturing methodology, the team implemented Lean Daily Management (LDM)—a process that holds everyone accountable by measuring daily results and exposing the root cause of each problem identified.

As Barry Hiett, Senior Director of Inventory Management, remarked, the key is to “Drain the swamp, remove the stumps! As we drained inventory, we identified the root causes that need to be addressed.”

Encompass Group’s project did indeed result in inventory reduction of 25% by year-end. It all started with a goal. Do what Encompass Group did. Take action before an inventory crisis hits.

**This week, set a goal to reduce inventory in your company.**

## 2. Develop a Safety Stock Strategy



Why do we keep finished goods inventory in the warehouse? Most supply chain professionals would answer that safety stock protects you from the uncertainty of the sales forecast. It covers you for the periods in which actual demand exceeds forecasted demand.

We may also keep safety stock because customers expect us to ship products to them within a lead time that’s shorter than what we require to make or purchase the product. If we could buy or build within the customer’s delivery expectation, we’d certainly prefer to do that—but we’ve got to keep customer service levels high.

**So, the question is: How much safety stock inventory should we keep to maintain our desired level of customer service?**

Many companies set an across-the-board inventory policy, such as, “We intend to keep two months’ supply for each item,” or, “We want to keep inventory at 100 units of each of our ‘A’ items.” This approach is easy to implement. But does it work?

A client of mine once illustrated a common problem with setting safety stock levels when he told me, “Fred, you just don’t understand. We sell to Home Depot. It’s just as bad for us to stock out of a ‘C’ item as it is an ‘A’ item.” He used that rationale to manage “C” items with the same inventory strategy as “A” items, setting every product to the same safety time.

His heart was in the right place as he tried to keep Home Depot happy—but he didn’t have math on his side. If you want to service items at a consistent fill rate, you can’t manage “C” items the same way you manage “A” items. If you follow the same safety stock strategy for both, you’re guaranteed to have too much of one or not enough of the other.

Every company wants 100% line fill—but this would require an inventory investment that’s cost-prohibitive for most organizations. Typical safety stock calculations use the variation of demand and a desired service rate to compute ideal safety stock quantities.

The higher the variation of demand, the higher the safety stock should be for a given level of service. High-moving “A” items have a lower relative demand variability than sporadic “C” items. That’s why you shouldn’t set all items to have a 98% service factor. If you use the safety stock service factor as the basis for determining quantities, try using these settings to reduce inventory:

- “A” items – Safety stock based on 98% service factor
- “B” items – Safety stock based on 95% service factor
- “C” items – Safety stock based on 90% service factor

Some companies prefer to use a safety time strategy to buffer for forecast error. Safety time uses an expression of “periods of supply” as the basis for safety stock inventory. But many companies set the same safety time strategy for all items, regardless of their ABC category. Instead of setting all items to have, say, three months of inventory, try using these settings to reduce inventory:

- “A” items – 2 months’ safety time
- “B” items – 3 months’ safety time
- “C” items – 4 months’ safety time

Keep in mind that even minor tweaks to a safety time policy can make a big difference in reducing inventory. The table below shows a real life example. Item 123456 is a high-volume “A” item. With a safety time of 3.0 months of supply, the item is projected to have an on-hand inventory balance of 1,131 units in 90 days (3.0 \* 377). As you can see, making small reductions in the safety time setting can result in major reductions in on-hand inventory.

Item: 123456  
 Lead Time = 90 days  
 Average Monthly Forecast = 377 units

Target Safety Time	Inventory Units in 90 Days	Reduction in Inventory
3.0 Months	1,131	
2.9 Months	1,093	3%
2.8 Months	1,056	7%
2.7 Months	1,018	10%
2.6 Months	980	13%
2.5 Months	943	17%
2.0 Months	754	33%

Your safety stock or safety time settings can have a significant impact on your inventory levels and customer fill rates. Start out making small, incremental reductions in the safety time setting.

**This week, fine-tune your safety stock strategy to chart a path to ongoing inventory reductions.**

### 3. Reduce High-Side Forecast Bias



Everyone loves to blame excess inventory on the sales forecast. But regardless of whether your software generated the forecast or you entered a manual forecast override, you own the forecasting process—and the forecasts that it produces.

If you're responsible for the sales forecast, you know that it runs high in some months and low in others. During periods when the forecast is low, we use safety stock and safety time inventory to meet customer demand that exceeds the forecast. But when the forecast runs high, things get trickier.

Forecasts that consistently run too high are especially troublesome to supply chain planners. What causes this high-side forecast bias? Here are just a few of the many possible causes:

- Your product sales growth projections are unrealistic.
- Forecasting software uses inappropriate statistical forecasting techniques.
- New product introductions don't meet projections.
- Sales people are entering over-optimistic forecast overrides.
- Product promotions didn't produce expected sales results.
- A new competitor is cutting into your products' market share.
- There's a shift in your product lifecycle from growth to maturity, and the decline wasn't picked up by your forecasting system.
- Product shortages prevent your shipment forecast from being met.
- Your SKU forecast is inflated by proration of over-optimistic sales budget at the family level down to the SKU level.

#### **Once is a Fluke. Twice is a Coincidence. Three Times is a Trend.**

During a forecast review session, it's not unusual to find periods in which the forecast was more than 10% greater than actuals over the last month. When it happens for a second month, we start to take notice. When it happens for a third month in a row, bells should go off. In supply chain planning software, those bells are called a tracking signal.

A tracking signal is a system-generated alert that identifies situations in which the forecast has run high by a specific percentage for three consecutive months. For "A" items, 10% is a good tracking signal trigger. Use the percentage to manage the number of items that trigger the alert. A higher percentage will trigger fewer items to review, while a lower percentage will trigger more items to review.

Here’s an example of how a tracking signal would alert a planner to a high-side forecast situation:

Period	Forecast	Actual	Forecast Error [(F-A) / A]	Trigger Tracking Signal Alert
May	200	180	11.1%	
June	200	150	33.3%	
July	200	125	60.0%	✓

Use the tracking signal to identify items for a special forecast review. Work to understand the root causes of the high-side forecast bias. Are the assumptions you’ve used to generate the forecast in the past not valid for generating the forecast for future periods? If so, change the forecasting formula or enter an override to reduce the forecast to below what the system says. This will result in a lower replenishment plan for future periods. You may also see the need to de-expedite or cancel open purchase orders or production work orders that you’ve already placed. The result of this review process will be lower inventory levels.

**This week, generate and use tracking signals as a means for reducing the high-side forecast bias and cutting inventory.**

## 4. Reduce Stocking Locations



Over the course of my more than 30-year supply chain career, I’ve witnessed some major shifts in warehousing and distribution strategy. It started with companies building big, central distribution centers (DCs). Then in the 1990’s, we ushered in the age of “getting close to the customer.” Suddenly, we were building small, local DCs that enabled us to guarantee overnight or same-day deliveries. Now, we’re shifting to the even fewer, even bigger mega-DCs that you now see alongside the expressways.

Suppose your company has five regional DCs. What criteria do you use to gain approval to stock an item in a particular DC? Or to stock an item at all, instead of building it to customer orders or direct-shipping it from the supplier? In too many companies, gaining approval requires little more than, “Our salesman said customer XYZ will buy the product if we put it in stock.” Excess inventory reports are littered with these kinds of decisions.

Why does it matter if we stock a product in multiple locations? The simple answer is that as we stock inventory in more locations, our inventory grows. Excess inventory often results from having too many items stocked in too many places.

Google “square root law of inventory” and do some reading. The Square Root Law states that you can approximate total safety stock by multiplying total inventory by the square root of the number of future warehouse locations divided by the current number.

$$X2 = (X1) * \sqrt{n2/n1}$$

n1 = number of existing facilities

n2 = number of future facilities

X1 = existing inventory

X2 = future inventory

Here are two examples:

- Current inventory is 4,000 units, and two facilities will grow to three. Using the square root law, the future inventory =  $(4000) * \sqrt{3/2} = 4000 * 1.2247 = 4,899$  units.
- Current inventory is 4,000 units, and two facilities will grow to eight. Using the square root law, the future inventory =  $(4000) * \sqrt{8/2} = 8,000$  units.

*Source: Lean Math*

You can see that increasing the number of stocking locations significantly increases inventory. We should never add stocking locations casually, but rather, on the basis of pre-determined stocking policy criteria.

When you discuss a stocking policy with supply chain planners, you often get blank stares. “Marketing decides which products to stock,” they may tell you. There are seldom any quantifiable criteria for what justifies stocking an item in a DC.

Whenever I define a stocking policy, I use the concept of inventory picks. A pick consists of a warehouse worker going to a bin to pull items for an order. When we think about picks, we’re not concerned with order quantities—we only care how many times a worker went to the bin location to pick an item. A sample stocking policy could be:

- Minimum Annual Picks to Support Stocking an Item at a Regional DC = 3
- Minimum Annual Picks to Support Stocking an Item (Company Total) = 5
- If an item does not have three annual picks, it should be de-stocked in the regional DC and the product moved to a central DC.
- If an item does not have five annual picks in all DCs, it should be de-stocked and moved to Make-to-Order Status or Direct Ship from the Supplier Status.

We shouldn’t stock products based solely on what Marketing or a sales rep tells us to do. Implementing a stocking policy will give us visibility into what level of expected business justifies stocking an item in a DC. It will also result in reduced inventory.

**This week, establish a stocking policy and use it to consolidate slow-moving items into a central DC.**

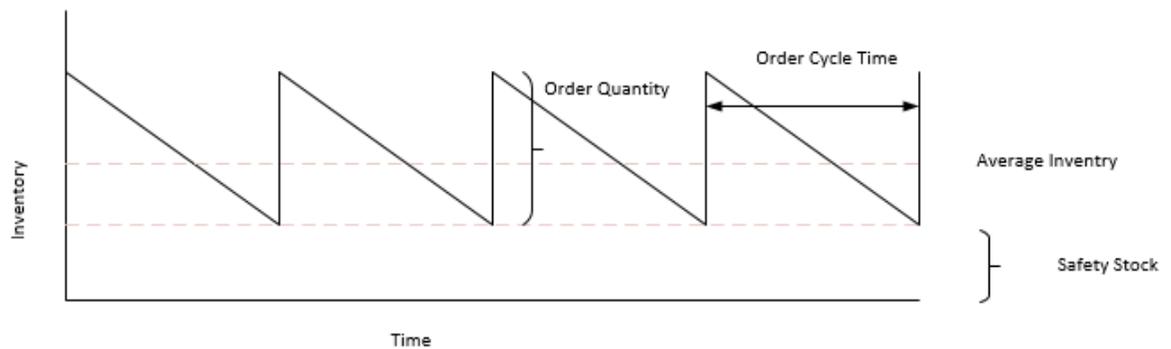
## 5. Spin the “A’s”



When it comes to inventory, “A” items are our bread and butter. By definition, they’re the 20% of items that account for 80% of our sales. “A” items have the most stable, predictable demand, and they come with a much lower risk of inventory obsolescence.

If you want to have a big impact on reducing inventory, spin the A’s. In other words, increase your replenishment velocity by ordering a lower quantity of these items more often. This will result in a lower average inventory level.

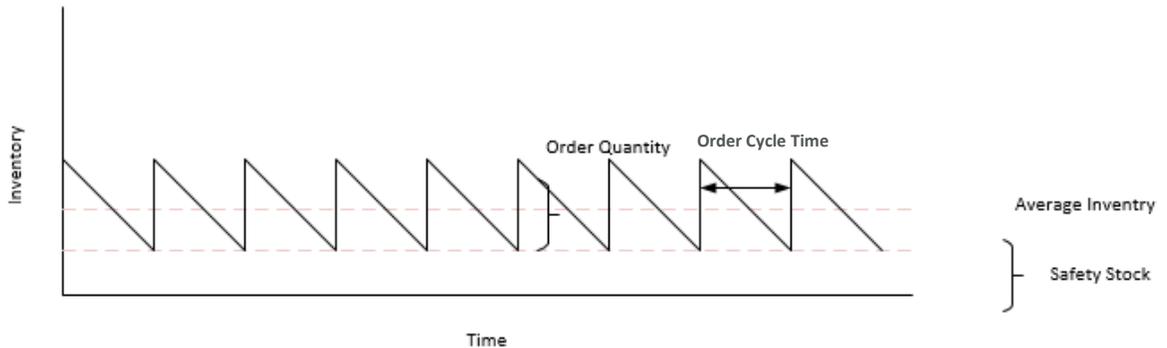
Here’s how the math works:



This is the well-known saw-tooth graph of inventory. The saw-tooth line represents the inventory balance over time. Customer orders consume our inventory until the balance drops to the minimum level, also known as the safety stock value. Just as the inventory balance reaches this minimum value, a new replenishment order is received, taking the inventory up to its maximum level.

The saw-tooth graph illustrates that  $\text{Average Inventory} = \frac{1}{2} \text{Order Quantity} + \text{Safety Stock}$ .

Our goal is to reduce the average inventory over time, making the saw-tooth graph look more like this:



In other systems, order quantities are often logistics related, such as full case quantities or pallet quantities.

Verify that your order quantities are not putting you into an excess inventory situation. Is the logistics requirement of ordering a pallet quantity leaving you with more than 6 to 12 months of supply? That should be a red flag that you need to reduce your order quantities.

A very successful technique is to use an **order time** variable for calculating order quantity. With this strategy, whenever you need to order more inventory, you'll buy in an increment of periods of supply. For example:

"A" items: Order time = 1 month

"B" items: Order time = 2 months

"C" items: Order time = 3 months

You should set the order time variable as low as you can for "A" items so that you can "spin the A's" faster than the "B" and "C" items.

You can help increase your order velocity by reducing your lead times. Planners at too many companies take lead times from suppliers as a given, saying "The vendor quotes us 28 days for all items," or "Lead times from China are 120 days" as if these are immutable laws of nature. But it's possible that the lead time parameter in your planning module was loaded during the initial system conversion and hasn't been adjusted since.

So, what can you do about it? Start by increasing your understanding of the replenishment process—and therefore, the lead times—of your suppliers. They're probably trying to do the same thing you are: forecast their customer demand and provide products that customers want. Do they ship to you from stock inventory or are your products made to order? That's important to know. If they're shipping from stock, you can and should expect very short lead times.

Work with your key suppliers to reduce their lead times. Provide them with projections of your future purchases in exchange for shorter lead times. Enter into a “quick ship” program with each supplier for your top 10 “A” items as a means for reducing your average inventory.

Clients often tell me, “We buy from China, so we can’t control the lead times.” Sure, you probably do have less control over lead times when you order from suppliers in Mexico, Latin America, or the Far East. But don’t just load 120 days into the lead time field and give up. Track actual receipts to see your actual lead times. Maybe the lead times are 100 days instead of 120. Every little bit that you can reduce lead times—and factor that into your planning—will result in lower inventory.

Another technique for “spinning the A’s” is to shorten the order review cycle from monthly to weekly replenishment. If your lead times are short, you might even consider going down from weekly to daily.

**This week, implement techniques to “Spin the A’s” and watch your inventory level begin to drop.**

## You're in the Driver's Seat. So, Get Moving!

Reducing inventory is challenging, but the situation is not out of your control. There are some relatively simple techniques you can implement quickly for rapid payback. Why not start this week working to reduce your company's inventory? You could even test out these concepts on a few inventory items to see how well they work for you. Remember, it's easy to:

<p>1</p>  <p>Set a Goal to Reduce Inventory</p>	<p>2</p>  <p>Develop a Safety Stock Strategy</p>	<p>3</p>  <p>Reduce High-Side Forecast Bias</p>	<p>4</p>  <p>Reduce Stocking Locations</p>	<p>5</p>  <p>Spin the "A's"</p>
--	---	--	---	--

I'm eager to hear what you think of these ideas—and how they work in your organization. Drop me a line anytime at [ftolbert@demandsolutions.com](mailto:ftolbert@demandsolutions.com).



---

### DEMAND SOLUTIONS

1 City Place Dr.  
Suite 540  
St. Louis, MO 63141  
Phone: 314.991.7100  
Fax: 314.991.7111

### EMEA

Sutton, Surrey, UK  
+44 (0) 20 8770 9320

### AUSTRALIA - ASIA/PACIFIC

Baulkham Hills, Australia  
+61 (0) 2 9659 4555