Is High Pallet Safety Stock Hurting Your Supply Chain?

January 18, 2018 - **Vidya Subramanian**
Read Time | **11 Mins.**

An optimized supply chain is supposed to do more with less. It calls for more throughput, more efficiency, more savings, less transit time, through lesser laxity, and with the least amount of resources utilized in the process.

While most supply chain professionals live by this litany, they limit its scope to the consignments they're shipping and the warehouses they manage, never the reusable pallets they're shipping on.

Why don't they think of the pallets you ask?

That, my friend, is the question.

Every guide on supply chain best practices talks about accounting for factors in a supply chain that cause asset losses, delays in delivery, and are responsible for damage in transit.

Yet, the management of reusable supply chain assets and returnable packaging such as crates, totes, cages, as well as returnable load carriers such as pallets and containers which are part of the same supply chain — that are supposed to help carry your goods safely — are rarely afforded the same consideration.

It is not that supply chain professionals consider pallets insignificant. On the contrary, they understand its high strategic importance when running an uninterrupted supply chain.

What if you've got a $200,000 shipment delayed or sitting idle because you don't have some $20 pallets to put them on?

What if the contents of that shipment are critical components meant for a production line?

What if that production line idles for a day, sinking capital, because of your delayed shipment?

What if YOU are penalized for ALL that?

Most supply chain personnel dread being caught unexpectedly out of stock, whether it is the product itself, or the pallets it goes out on. They mitigate this risk by holding extra stock (commonly known as safety stock or buffer stock) to protect against stock depletion as well as account for variables in the time it takes for your replenishment stock to arrive. This is commonly referred to as "lead time demand."

There's a simple formula to apply when you need to decide when to order buffer stock before your existing inventory runs out.

The time to reorder (Re) is the sum of the time your replenishment stock will take to arrive (Rp) (factoring in lead time demand) plus a level of safety stock (Ss).

Re = Rp + Ss.

Interestingly, the supply chain industry has evolved to accommodate its inefficiencies and eventualities, working around the problem by maintaining buffer stocks of such reusable packaging.

Such an inventory system will work, perhaps even perfectly, in an ideal world.

I'll give you a minute to stop laughing.

The reality you are dealing with is probably very different. You have too many variables to reliably account for, and the best you can hope to do is to mitigate their effects. The easiest, most prevalent method of mitigation is pretty straightforward — overstock.

The issue, however, is that it's probably one of the most inefficient methods you could use to ensure prompt shipping of your product and avoid disruptions in your logistics.

The Aberdeen Group estimates that 60% of companies use overly simplistic inventory management methods, and the same companies frequently have 15% - 30% more returnable packaging inventory than they need.

And yes, those unnecessary or unused shipping assets are indeed Non-performing Assets (NPAs), and they are eating into your company's books and as well as its share value.

Reasons Why Returnable Packaging Items Are Often Overstocked

Whether you're purchasing or pooling, buffering is as important for your products as it is for the pallets you ship on.

Supply chains need to be able to react quickly to market fluctuations, especially when there's an unanticipated spike in demand or an unexpected disruption in supply. Most supply chains are designed to avoid running out at inopportune times, overstocking as a safety measure against falling short.

When you're in a pool with others that keep their Returnable Shipping Assets (RSAs) longer than needed, or worse, over-stock for fear running out, it slows down the circulation of Returnable Transport Items (RTIs).

Chances are, you are overstocking because you're afraid someone else is doing the same.

It's ironic that a side-effect of stockpiling such a safety buffer is that it spikes inventory build-up within certain legs of your supply chain (or with certain customers in a pallet pool) and slows down the circulation of your reusable supply chain assets, thereby creating an artificial shortage, which then requires more safety stock to offset.

The fear of running out isn't the only motivation to overstock, with supply chains buffering due to one or more of the following reasons:

- **To Match Production Schedules**
  Without reusable supply chain assets like pallets or totes handy to move finished products, it might be necessary, in some cases, to stop your production line.

- **To Offset Assets Tied Up in Warehoused Inventory**
  When inventory is produced and warehoused on/in reusable supply chain assets such a pallets or containers, those assets are effectively out of circulation and need to be offset. This is particularly a concern if you are a member of a returnable supply chain asset pool where you are mandated to recirculate assets at fixed intervals, at the risk of incurring hefty holding fees.

- **To Offset Warehoused Supply Chain Assets Due to Demand-side Fluctuations**
  While sectors such as FMCG or agricultural produce experience steady throughput, many others such as automotive spares, commodity goods, or textiles may not be able to move product as quickly or with as much predictability. There are also instances where some reusable packaging such as crates double up as display cases, and wouldn't re-enter circulation until their contents are depleted. Consequently, the supply chain assets in such cases also remain out of circulation, and need to be substituted.

- **To Cope With Split Loads**
  A single shipment often gets split into smaller loads meant for different destinations, and consequently, will require additional supply chain assets down the line to handle the loads.

- **To Offset Delays in Reverse Logistics**
  Recovering your reusable shipping assets poses a problem when supply chains aren't closed loops, when the pickup and drop-off points are separated by large distances or numerous intermediate pickups, or during busy periods, when forward logistics trumps the need for restocking runs.

- **To Offset High Cycle and Dwell Times**
  Buffer stocks are invaluable because shipments — and the returnable containers to move them — often get delayed, held up, or fail to follow their prescribed schedules, and you need to have enough inventory handy to offset those shortfalls.

- **To Offset Leaks in The Supply Chain**
  Returnable packaging gets lost, misplaced, or breaks down pretty often, and it's difficult to pin-point and plug such leaks in a complex supply chain, especially when it's an open loop. Suppliers often overstock because they've got no visibility into shrinkage among their supply chains.

- **To Offset a Lack of Automation**
  Many supply chains are still managed through inefficient and error-prone manual methods, and there's no reliable automated solution that can effectively count incoming and outgoing assets, ascertain their location within the organization or supply chain, or predict incoming shipments, stock-outs, and the best time to reorder.

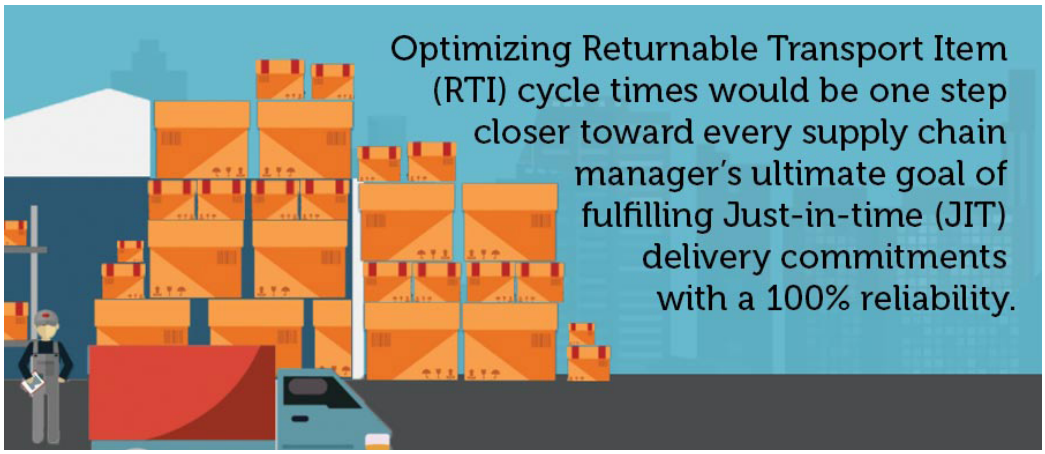
Existing reusable shipping asset tracking processes rely on an exchange of information detailing the quantity, location, and time data, most of which is tracked manually. This is gathered through a variety of channels such as invoices, calls, email, and so on, but it's very rarely real-time, and there's almost always a sizable time delay in gathering data. Given the SOPs and limitations of current systems, it's difficult to make supply chains agile, and as a result, reusable supply chain asset inventories such as pallet counts are often incorrect.

> **Even with ERPs in place, getting a handle on RSAs is tough. For example, SAP's returnable packaging module is great at maintaining stock data, but the data input is still largely manual.**

You likely need to overstock because you've got to offset other supply chain inefficiencies.

Most, if not all these issues, could be dealt with more effectively if you just had a little more visibility into the location (and perhaps even condition) of your returnable supply chain assets. Limited visibility compounds the tendency for supply chains to overstock their reusable supply chain assets.

Is Buffering Really Needed To Save You From Disruptions?



The short answer is — no.

Storage is a premium, whether you're running out of a large facility or small one. Space is expensive, with the cost of rent, security, maintaining stable environmental conditions for your cargo, and so on, to contend with. Storage locations also need the deployment of specialized equipment and infrastructure such as cranes, forklifts, and shelving or racks, all of which are capital costs. In a global economy rife with cut-throat competition and shrinking margins, you need to run your supply chain, and by extension, use elements such as your supply chain assets and storage space as efficiently as possible.

You need to maintain the least possible amount of buffer stock and reduce overstocking (and its allied costs) to a bare minimum if you're serious about running a lean and efficient supply chain. Simply buffering your pallets doesn't help; rather, it hampers efficiency. Additional assets occupy more space, needs more resource allocation (in terms of handling, manpower, or machinery) — all of which creates more overhead and reduces warehouse efficiency.

Optimizing Returnable Transport Item (RTI) cycle times would be one step closer toward every supply chain manager's ultimate goal of fulfilling Just-in-time (JIT) delivery commitments with a 100% reliability.

The trade-off — overstocking in lieu of dealing with shortages or stock-outs — may have been worth it in the past. Given the technological advantages at the disposal of today's supply chain

professionals, however, the compromise hardly seems justifiable.

How Much Does Overstocking Reusable Containers Really Cost You?

Smaller warehouses are, generally, more efficient than larger, more unwieldy ones.

While there are some benefits garnered from economies of scale, a larger facility has significantly higher inefficiencies than a smaller facility. The only way that larger warehouses, or supply chains for that matter, can be more efficient is if they change their processes.

If you want to dig into where you can reduce supply chain costs, especially those associated with your reusable or returnable supply chain assets, you are spending more than required in these areas:

1. Unnecessary Rental Fees

If your rental cost per pallet is $10 per annum, and you are holding 625,000 pallets instead of the 500,000 pallets you actually needed — 25% more than what is optimal — pushing your annual additional rental spend to $1.25 million.

2. Pallet Logistics Cost Associated With Buffer Stock Order & Returns

You're spending on forward and reverse logistics for all the shipping assets you're holding, and if they're always on standby or aren't put into circulation enough, they're not really getting you enough ROI. This 25% RSA (125,000 pallet) buffer stock could cost you $250,000 even if the cost of one-way shipping is a menial $1 per trip.

3. Working Capital Interest On The Additional Stock

The $1.25 million you're spending as additional rental fees for the buffer stock could cost you $75,000 in borrowing interest. This is small when compared to the rental fees, but significant nevertheless.

4. Warehousing & Storage Cost

The cost per square foot of warehousing is $4 to $7 per year. Assuming $5 per square feet per annum (not including operational costs and manpower) and estimating a storage of 25 pallets in every 4 square feet of space, you're spending $100,000 extra annually to stock the additional 125,000 pallets (25% buffer stock) in the same example.

Together, that is a total potential savings worth $1.675 million if you are using half a million RSAs in your business.

There are more areas where you could be burning your funds. With more pallets in your system,

and the lack of prompt action on RSAs stuck in your customer's warehouses, the chances of losing these supply chain assets also increases.

Your NPAs could turn into something even worse: Asset Loss!

Through audits and better visibility into assets and safety stock at each location in your supply chain, you'll realize the opportunities to right-size your asset pool size while still measuring up to actual demand. This is especially important you're pooling or renting, and need to handle billing issues as well as the inevitable disputes that arise from improper shipping, receiving, or logging.

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