



# 5 HIDDEN CAUSES OF EXCESS INVENTORY

**sage** Inventory Advisor

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Excess inventory is frozen capital. Capital that could be used to develop and grow your business.

In this e-book, we delve into the top 5 causes of excess inventory and how you, as an inventory planner, can prevent excess inventory using industry best practices.

*37% of customers rate excess stock as their number one inventory challenge*

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# 1

# BAD FORECASTS

Bad forecasts are the leading cause of excess inventory. Management often skips right past this one, thinking they do not use forecasts in the first place. Further investigation almost always shows that they are using a simple sales average or static ordering model. Although those are basic calculations, they qualify as forecasts – and, they are rather crude.

*Since everyone forecasts in some fashion or another, let us look at how a forecast gets made and implemented.*

We like to break it down into two basic sides: first, the forecast engine that does all the grunt work, and second, the process and tools used to identify forecasts that are off the mark. One without the other is not possible. One important point before we go any further is that forecast engines reach the point of diminishing returns. Companies spend vast amounts of money adding incredible layers of complexity to their engine to account for every possible scenario. The result is always an



engine that no one on the team understands, which inevitably leads to an engine that no one on the team trusts. If you cannot comprehend or trust the forecasts you are generating, what is the point? That is why the tools and processes are so essential.

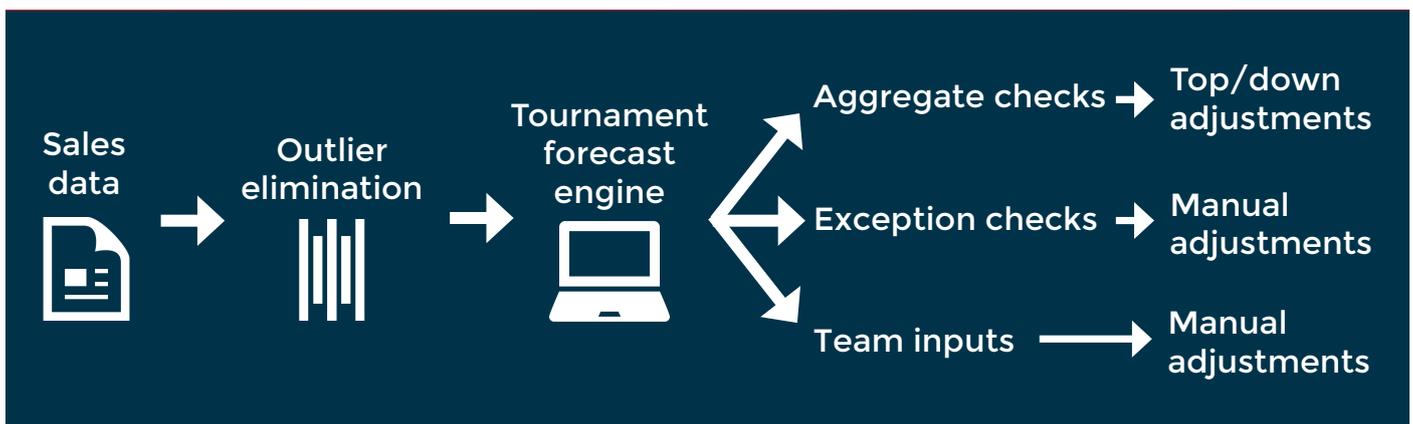
A forecasting engine will only be so effective—no matter its complexity. It is far more efficient to employ a robust engine with an effective series of checks and balances to keep everything in order.

*So, with that said, let us start on tools.*

Earlier, we mentioned a simple sales average as a basic type of forecast. Such an average does not detect or address seasonality or trends, which are critical components to many forecasts. Using a spreadsheet to understand that kind of data can be quite complicated. It is also important to address the concept of a “tournament” or a “best-fit test,” which compares the various formulae that an engine can use.

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That is what allows an engine to pick the best algorithm and range of parameters needed for a specific item within a particular month. Be careful in editing the formulae or changing the parameters, as slight changes could have significant ramifications. Some people will even modify the historical data to game the engine, but if the engine worked correctly, that should not be necessary.





## Bad forecasts continued

The process required here means getting the right people involved at the right time. The sales team plays a key role in providing updates to the inventory planner. A word of warning, though: please do not use sales projections as a forecast for purchasing stock! The same can be said for budgets, which is a similar type of input, usually on the optimistic side. Both are likely to be out of date. They can provide useful context, but they should not be blindly followed. We suggest starting each month with an overall review.

*Here are some aspects to look at:*

- \* Compare sales against past forecasts, overall and by group
- \* Look at over- and under-forecast percentages for recent months
- \* Identify any products or groups of products that seem to be behaving unusually (and loop in more senior team members to gather more intel)
- \* Compare the top over- and top under-forecasts from the last three months with the corresponding sales figures
- \* Examine new products and intervene manually if data is lacking

Before placing any major orders for the month, it is essential to get these steps out of the way. During the month, it is important to check in on items where the run rate is ahead or behind the expectations. For example: if there is an item with a forecast of 100 units for the month, but there have only been a few sales after a couple of weeks, something may need to be adjusted. Check-in on these exceptions in weeks two and three of the month to help align the forecasts.

Forecasting comes with a set of challenges and headaches, but a smart forecasting engine aided by some basic processes for monitoring goes a long way to a more balanced inventory.

Without the right balance of an inventory forecast engine and an on-going process to check the forecasts, the warehouse is doomed to stock-out at inopportune times. Most planners will go with extra buffer inventory, so they do not have to worry about stock-outs, but that's where the expense of excess becomes a cash flow killer. For businesses that balance the tools and processes, the result will be a balanced inventory.

### Further reading

*If you would like to learn how to create more accurate forecasts, read [this article](#)*



## 2 NEW ITEMS

Businesses need to move forward to avoid stagnating or becoming irrelevant. For many companies, that means starting new product lines; however, getting forecasts on new items is not always easy. Most warehouses have some new products that were ordered in excess and now have a bit of dust piling up. This is bound to happen, and there's no silver bullet to solve the problem completely, but it's better to dial in a workable process to make new item excess a rarity. The improved cash flow that will result is critical to staying nimble and responsive.

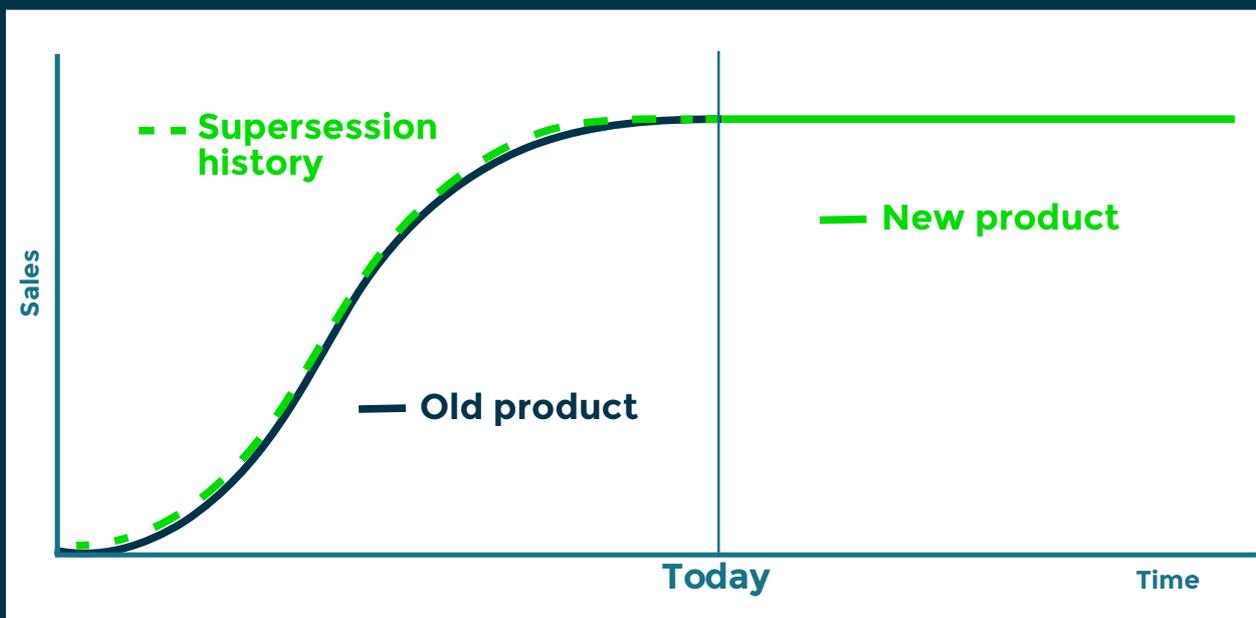
Let's dive into some simple strategies to help reduce excess inventory on these newer items.



### Supersessions

If a new product is only being created because the vendor changed its code, consider using a concept called supersessions. That's where the new product is linked to the old product, and the sales history can be shared. Follow that by flagging the old product as obsolete to avoid that item coming up on the wrong lists. Also, consider any outstanding sales orders and purchase orders as well as existing inventory left from the old code and put together a plan for the remaining old stock.

With product supersessions, remember to look at supply chain links like inter-warehouse links and bill of material structures. Be sure to include the new products when appropriate. That helps ensure that the demand streams that were in place for the old code carry through to the new one and get the planning off to a good start.





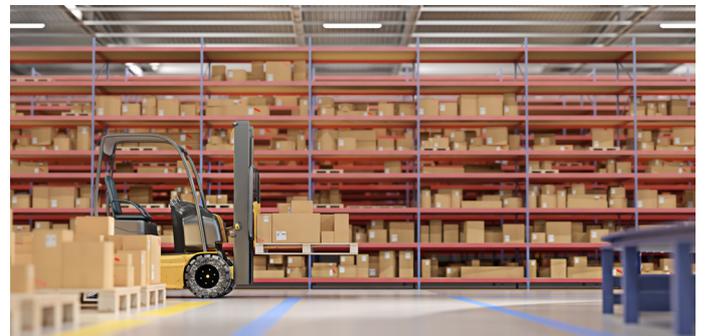
## Comparable items

It's also common to have a product that is likely to behave the same as some other products, but the other product is still active. The solution here isn't exactly a supersession, but rather a simple override of the forecast for the new product that reflects the older, comparable item.

One key aspect is to clearly identify those new items that require more attention. Remember that while these items are "growing up," they will need a little more examination and occasional manual overrides. It is common for planners to overbuy because there is no history to lean on, but at least try for a reasonable estimate, even if that's based on "gut feel." That's better than nothing! And aim for a forecast that starts when your stock is due to arrive. That way, any over- or under-performance can be found in the period-to-date forecast analysis. Also, remember to watch out for sudden spikes caused by launch specials later in the product's life cycle.

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There is no go-to solution for new items. But with supersessions and comparable products, realistic forecasts are possible. Add some manual tweaks based on initial performance, and there is no reason to be saddled with new items in excess.



These new products are often critical to a business's growth, but ordering too much to start will be a costly problem that could stick around for a while. Planners that use relevant data and keep their eye on fluctuations will be way ahead of schedule to create quality forecasts in the future.

# 3 CUSTOMER FORECASTING

When we discuss forecasting, one common topic is customer forecasts. Many planners are adamant that they should create forecasts per customer, per product, per warehouse. The technology is available to make something like that work, *but is it the best approach to planning?*

Ultimately, customer-level forecasting is a tool companies use to hold the sales team accountable or to get customers to commit. Those objectives are entirely understandable, and sometimes may even feel necessary, but what if it affects the buying process negatively? What if the result is excess inventory from overly enthusiastic sales projections?

Let's break this down a little more. Say we have 100 customers we want to get information on. We have five warehouses and an average of roughly 200 products involved here.

That makes for simple math:  $100 \times 5 \times 200 = 100,000$ . That's 100,000 product level forecasts to be collected. If that task is spread across ten salespeople, each salesperson would be responsible for 1,000 forecasts from customers every month. Even if it only took five minutes per forecast, that would take nearly 85 hours per salesperson. That's half the month right there. Is that really what the sales staff should be doing? And what is the reliability of each forecast?

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**LIKELY SCENARIO**

100 customers  
200 products  
5 warehouses

→ 100,000 forecasts!

With 10 salespeople

↓ 1,000 forecasts for each sales person

**=85 HOURS per month!**





## Customer forecasting continued

Some businesses rely on customers to submit their forecasts, usually on a spreadsheet. What is the quality of that forecast? If you were the customer and you want to ensure there will be enough stock when you order, would you maybe round up a little on your forecast, just as a buffer? And what if, say, half of the other customers filed similarly inflated forecasts?

It's pretty easy to see how this process lends itself to inaccurate forecasting and how those inaccuracies can quickly become costly excess in the supplier's warehouse. Another option is using a forecasting engine to crunch the numbers, which is certainly better than asking for customers' best guesses. With any statistical engine, the results are only as good as the inputs. Smooth data creates more predictability.

Many articles suggest starting at a highly aggregated level to produce a better result. Think about this for a moment. If a customer is buying a product and the rate of sales is in the single numbers per month, they could have an ordering pattern of 10 every second or third month, give or take. That is going to create a horrible forecast unless you have some causal based model that proved to be predictable. Now multiply that by all customers, and you end up with a bunch of bad forecasts.

So what's the takeaway on customer-based inventory forecasting? If it's a tool to keep the sales team striving for their monthly goals or to keep customers engaged, that's fine. In fact, those figures could be helpful when building forecasts. But to use those numbers in place of a forecast is a recipe for excess inventory, month after month. Using a statistical forecast is a far more reliable method of planning, and the customer forecasts can help provide further analysis and context to keep everything running smoothly.

Remember, the key is a balanced warehouse, where both excess inventory and stock-outs are kept to a minimum. If customer forecasting isn't doing the trick, it's time to consider other inventory planning tools.





## WE ARE AT THE MERCY OF SUPPLIERS

Dealing with suppliers requires some give and take. Even the best and most efficient suppliers out there will have some constraints that need to be accounted for to keep prices competitive. Restrictions like Minimum Order Quantity or Minimum Order Values are common, and the nature of the supply chain requires planners to factor in lead times as well.



## BUFFER STOCK

When you add up these various concerns, it's understandable why so many planners rely on carrying additional inventory, sometimes referred to as "buffer stock" or "safety stock." That extra inventory is quite helpful in case of the occasional minor disruption. With longer lead times or higher minimum orders, two things are usually true: calculating the appropriate buffer stock becomes trickier, and planners need to work out their orders further in advance. These aspects complicate even the most basic planning tasks. They can leave warehouses with excess inventory that goes well beyond the need for normal buffer stock amounts.

Let's start with minimum constraints. At the simplest level, this is imposed as a minimum order quantity (with maybe some multiple). It's important to remember to factor these minimums into ordering parameters and the calculation of safety stock. One twist that may seem counterintuitive with larger purchase quantities is that often the buffer amount will need to be adjusted down.

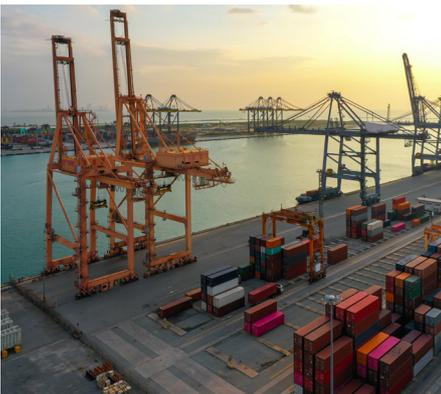
## Let's look at some other constraints

### Container loads



One important restriction to keep in mind comes with container loads and fills. There may be some variable components when transporting container loads of products, but typically the goal is to use as much of the weight or volume capacity as possible. Often, planners can do this in one way or another, due to the volume or the use of shipping consolidation services. If these options don't apply, adding containers is an option, too.

When filling a container, it is important not to load it up with all the same stuff – that's a surefire way to build up a bunch of excess inventory. Similarly, it's not a great idea to fill up a container with other random items, either. The ideal is to identify items that should be ordered in the next couple of weeks and determine a top-up quantity that fits with the overall buying plan. That's the smartest way to get the most of any extra container space without getting bogged down with unhelpful and costly excess inventory.



### Stock visibility



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Another very common stumbling block is related to lead times and the stock's visibility while it is in transit. Losing sight of stock that's en route can end up in double ordering. Some stock tracking systems don't provide much help here. When a stock transfer is posted, the system might immediately place the stock in the receiving warehouse, even though it isn't there yet. That's bound to drive a warehouse manager crazy! Some companies create an “In Transit” warehouse in the system as an intermediary to account for the on-going shipment. That is helpful for basic inventory control, but it makes planning a lot more complicated. To avoid problems, a planner needs to see that stock is in-bound and when it is scheduled to arrive, which can be done by adding some custom fields in the “In Transit” warehouse database.

### Lead times



As for lead times, planners and suppliers must have an accurate and appropriate calculation. Any discrepancies or lack of visibility will lead to stock-outs or excess inventory. Plan each location in isolation and consider the lead time as the measurement of time between the moment an order is placed and when it is available for sales, assuming no unusual disruptions or complications. That is the best way to ensure all of the various aspects are factored into the lead time for a specific product.

If this seems complicated, keep in mind that these restrictions and considerations aren't always applicable. However, even more complicated environments also exist, and the only reliable solution is a better set of tools. The right tools make the process easier to manage and comprehend. They can't change the fact that the ordering and planning process is often quite complicated, but they can provide a solution that will keep planners on top of the various issues at hand. Without the right tools for the job, such complexities are bound to lead to excess inventory or stock-outs. Losing customers as a result of stock-outs is damaging to your bottom line.



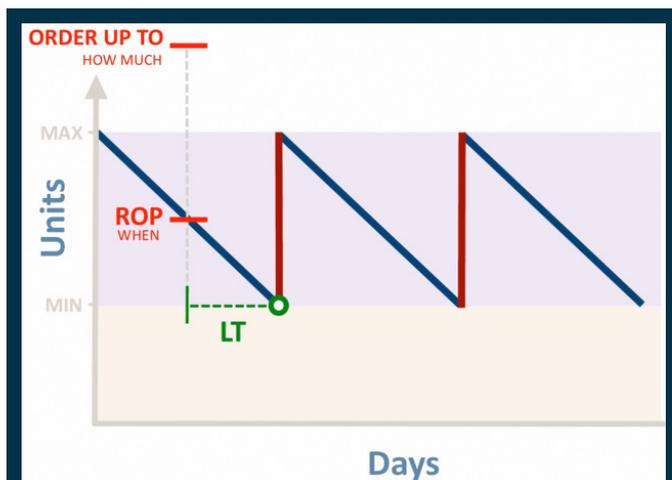
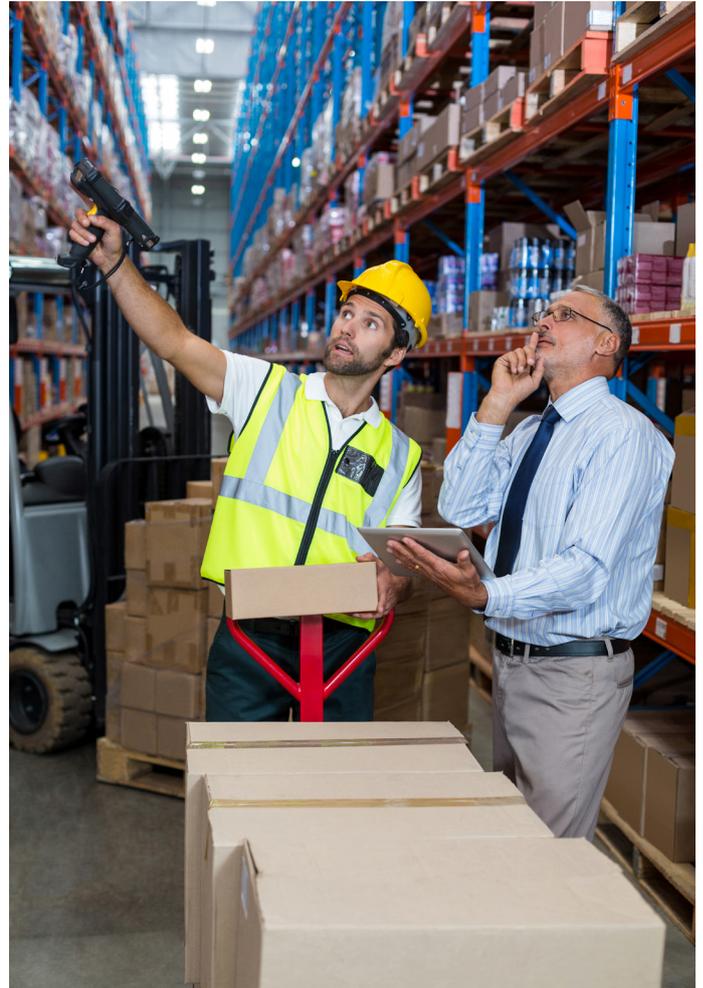
# 5 INCORRECT LEVELS

It may seem obvious that incorrect levels can lead to excess inventory, but let's dive in on this for just a minute. Various planning inputs determine levels, and it's those inputs that need to be examined. No matter the applied methodology in calculating levels, if the inputs are off, the result will also be off. To fix incorrect levels and refine the inventory planning process, we need to check the inputs first.

Before the reign of the desktop computer, most businesses relied on simple processes to determine their inventory levels. Often, a planner's gut feeling provided most of the ordering insights, something like "there's a big order coming in, so let's plan for that" or "these bins are looking a little light, let's top them off." As companies and supply chains grow, more people get involved, and more complexities are on the table.

*For now, let's characterize these complexities in two main camps.*

First is a "re-order level" that defines when re-ordering should occur. Second is an "order-up-to level" that defines the quantity up to which should be ordered. Crunch this number: current stock minus any commitments plus any stock coming. Then compare that to the "re-order level" – if the item is below that level, it's time to place an order that hits the "order-up-to level."



*To find out more about how much to order watch a video here*



*The factors that go into these levels are the buffer stock (aka safety stock), the lead time (LT), and the replenishment cycle (RC). The resulting order should be modified by the minimum order restraints or order multiples, of course, but these restrictions shouldn't be factored into level calculations at the risk of making the levels too high. It's usually best to make these measurements in terms of days, but measuring in weeks may be more appropriate in some instances. Other demand streams that may apply could include sales orders, manufacturing demand (MRP), and/or other warehouse requirements (DRP).*

Earlier in the e-book, we zoomed in on the importance of lead time. It is critical to stay on top of product lead times, including the status of on-going orders that are en route, so that no unnecessary orders are placed. The way lead time interacts with safety stock is key, as well.

## Incorrect levels continued

For example, if a supplier delivered the exact quantity needed at precisely the right time, without fail, and that perfectly corresponds with the timing and amount of all customers, then there wouldn't be a need for any safety stock. Even if the lead time was quite long, a planner could make that work without safety stock. But that's not how real life works in the supply chain, and it highlights exactly why safety stock calculations are critical. Suppliers aren't that reliable, and customer demand isn't that predictable, which means safety stock is a necessity to bridge the gaps as they occur.

Additional concerns to factor in here include order cycle and lead time. These are the must-have inputs that go into calculating the safety stock levels that correspond with different fill rates. The higher the ideal fill rate for a product, the higher the safety stock should be. The most important products will need the highest fill rates, and that means holding additional safety stock is probably necessary.

Furthermore, if two items had the same target fill rate but very different supplier risk, they would also have very different safety stock levels. It is this sort of dynamic approach that allows you to cover each item based on its unique profile and reduce the overall investment while improving customer fill rates at the same time.

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*With bad inputs, the process is going to be out of whack, regardless of the tools used to forecast.*

A quality tool will help a planner identify places where data purity can be improved so the tool will work better. For those on spreadsheets doing calculations as best they can, there is no hope of improving the data. Weak data purity is not a reason to keep using the same old process and tools; it's a wake-up call to improve the warehouse and the business.

### Further reading

*We touched on the issue of safety stock. Here is some more information and tips on how to calculate your safety stock*



