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BUSINESS SYSTEMS

NETSTOCK

The ultimate guide to inventory management.

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This eBook is designed to help inventory planners or supply chain managers set up their inventory correctly with the right policies and procedures, classifications, and parameters.

Content.

\ Introduction

This eBook offers you practical steps to smart and successful inventory management. Designed to help inventory planners or supply chain managers set up their inventory correctly with the right policies and procedures, classifications, and parameters, it's a best practice guide to excellence in inventory management.

The stability and sustainability of any business relies on a solid foundation, and this eBook hands you all the materials and tools you need to create just that for your inventory planning and management.

This eBook covers how to:

- Classify products to focus resources
- Forecast management and its impact on inventory performance
- Hold the right safety stock, and its importance
- Set inventory policy in line with realistic targets
- Implement effective ordering to reduce excess and minimize stock-outs
- Explore exception- based inventory management

\ Classify products to focus resources

It's challenging to view hundreds, or even thousands, of inventory items and make informed decisions that effectively manage volume and purchasing – determining precisely what to buy, what's running short, and what's overstocked. The best way to establish these parameters is to **classify items correctly**, as this will allow you to focus on the 20% that gives you 80% of your sales.

Obsolete items

The first thing you should do is remove all of the obsolete items. These are typically items that have not sold a single unit in 18 months to 2 years. Obsolete items are just noise that will distract you from the 20% of items that make up most of your sales.

Action: Mark all items that have made no sales in the last 24 months as obsolete.

Non-stocked items

A non-stocked item is one that you keep on the price list but not in the warehouse. You will only order a non-stocked item when your customers order it from you. They are typically slow movers that your customers can't easily get elsewhere and are willing to wait for delivery.

Action: Mark all items with no sales in the last 12 months as non-stocked. Make sure not to include new items that you haven't stocked for at least 12 months.

The 80/20 rule

Now you've eliminated some of the noise, you can now focus on the items that are fast movers. Do this by classifying them with a traditional ABC criterion that's based on forecasted sales and costs.

Action:

1. On every item, multiply its cost price by the average monthly forecast – let's call this number X for every item.
2. Compute the sum of all X and write it down.
3. Calculate two cut-off points as 80% of the summed value and 96% of the summed value, and write them down.
4. Sort your list in descending order of X, with the highest values at the top.
5. Start at the top of the list and mark each item as A, accumulating X values as you go.
6. As soon as you get to that 80% cut-off, start marking items as B, still accumulating.
7. Once you get to the 96% cut-off, mark all remaining items C.

The **problem** with this approach is that you might have an item that is very cheap but sells 10,000 units per month. Computing its X value might result in a very low number, meaning it falls in the bottom 4% and is flagged as a C item. However, this item is massively important to your customers who buy it and needs to have a different classification.

The **solution** is to apply the same approach as above but base it on your unit sales. Instead of A, B, or C, you compute high, medium, or low velocity. The velocity criterion becomes incredibly powerful when it is combined with the ABC classification you calculated above.

Now you have a view of where your fast-moving cheap items (C-high) are, they are no longer lost within the C-items. Likewise, your expensive slow-moving items (A-low) are also highly visible as with your bread and butter lines (A-high) that are massively important to your business.

Are you investing time and money into items that aren't profitable?

Read on to get actionable tips on how you can reduce your inventory holding while improving your sales at the same time.

Forecast management

There are challenges associated with accurate forecasting. Dumping data from your enterprise resource planning (ERP) spreadsheets don't give you an accurate forecast. You also can't rely on checking every record and calculation, one by one, day after day.

But you still need a way to properly plan your inventory forecast.

The pain

We all know that forecasting is one of the key drivers of inventory replenishment. If you over-forecast, you end up with excess; if you under-forecast, you run the risk of stock-outs.

The things that make forecasting difficult are:

- Erratic demand
- Seasonality
- New product introduction
- One-off project sales
- Tens of thousands of products
- Product replacement
- Market cannibalization
- Channel forecasts

The theory

Forecasts will always be wrong. What's important is how wrong the forecast is, and identifying the items where the forecasts need to be adjusted.

To produce consistent and measurable forecasts, you need a tool that creates a baseline that can be adjusted to incorporate market knowledge and any exceptions to the norm.

The approach

The best way to produce the highest quality forecasts in a repeatable manner is as follows:

1. Establish a baseline forecast per item;
2. Adjust the forecast to take account of:

- Seasonality
- Product growth
- Product replacement
- Marketing campaigns

Once you've established these baselines, you'll need to review and monitor the calculations you've done as follows:

1. Review forecasts at a macro or summarized level to ensure that they are reasonable, adjust at a top-level where required, and then blow macro forecast adjustments down to a line item level using a prorating mechanism.
2. Monitor forecast performance using a mechanism that effectively distills the amount of over- and under-forecasting.

The direction is important as a bias:

- Over-forecasting will lead to excess stock
- Under-forecasting will lead to stock-outs

Now that you've assessed the quality of your forecasts, you should establish a process to manage and adjust them continually. The steps should include:

1. Having a mechanism for highlighting, on a weekly and monthly basis, the forecast that is tracking sales poorly. Always rank the items in these exception reports by the value of what will have the biggest impact on generating excess or that will lead to stock-outs.
2. Have a structured weekly and monthly review to ensure ongoing improvements in forecasting and stock management processes.

Establishing a baseline forecast

This is the most difficult element of the forecasting process and is typically performed by a computer algorithm designed specifically for this function. In the absence of computer assistance, you'll need to use a spreadsheet. It is worth noting here that more recent versions of Microsoft Excel do offer some forecasting functionality.

What if you have less than 24 months of stock history? In that case, simple formulas such as a weighted average or exponential smoothing can be the most robust and simple ways you can compute forecasting. You can use standard forecast models for formulae. The example below showcases the stock movements for an item with at least 24 months of demand history, including seasonality and product growth.

Extract the sales history per item and per month by forecast group – this can include by warehouse or by channel – and then perform the following steps:

Step 1: De-seasonalize the data

1. Calculate the two-year total for each month

2. Compute the average for the two-year total (550)

3. Divide the average (550) into the monthly totals to get the monthly seasonal index

4. De-seasonalize the demand data by dividing by the monthly seasonal index

Image highlighting stock movements for an item with at least 24 months of demand history, including seasonality and product growth

	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Avg	Totals	
Year 1 demand	111	73	170	47	52	135	139	347	710	411	313	186	225	2,694	
Year 2 demand	123	85	142	33	52	256	444	755	790	509	368	346	325	3,903	
Total for 2 years	234	158	312	80	104	391	583	1102	1500	920	681	532	550	6,597	1) & 2)
Seasonal Index	0.43	0.29	0.57	0.15	0.19	0.71	1.06	2.01	2.73	1.67	1.24	0.97	12.01	12.01	3)
Year 1 De-seasonalized data	261	254	300	323	275	190	131	173	260	246	253	192	238	2,857	4)
Year 2 De-seasonalized data	289	296	250	227	275	360	419	377	290	304	297	358	312	3,740	4)

Step 2: Establish a trend forecast

The simplest way to do this is by using linear regression and by creating a straight-line trend using the formula y = bx + a. In this formula:
b is the slope of the line and
a is the intercept on the y-axis
y is the de-seasonalized demand data
x is the demand periods

Now you need to compute the elements so that you can calculate:
The slope b
The intercept a

Here's the formula to use:

$$a = \frac{(\sum y)(\sum x^2) - (\sum x)(\sum xy)}{n(\sum x^2) - (\sum x)^2}$$

$$b = \frac{n(\sum xy) - (\sum x)(\sum y)}{n(\sum x^2) - (\sum x)^2}$$

	Year 1											
	19-Aug	19-Sep	19-Oct	19-Nov	19-Dec	19-Jan	19-Feb	19-Mar	19-Apr	19-May	19-Jun	19-Jul
Periods X	1	2	3	4	5	6	7	8	9	10	11	12
Deseasonalized Y	261	254	300	323	275	190	131	173	260	246	253	192
X * Y	261	508	899	1,292	1,347	1,139	918	1,385	2,342	2,456	2,779	2,306
X * Y	1	4	9	16	25	36	49	64	81	100	121	144
Y *Y	68,006	64,515	89,726	104,315	75,556	36,028	17,180	29,996	67,712	60,317	63,845	36,943
Forecast	332	337	342	346	351	356	360	365	369	374	379	383

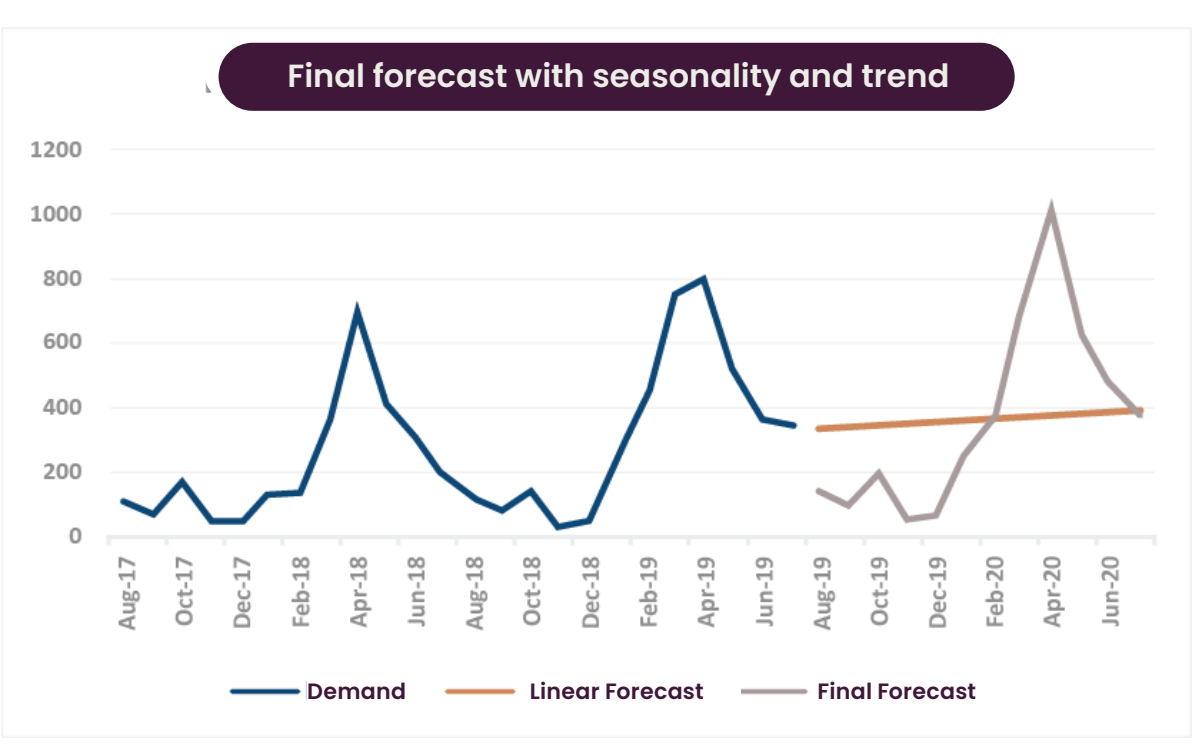
	Year 2												
	20-Aug	20-Sep	20-Oct	20-Nov	20-Dec	20-Jan	20-Feb	20-Mar	20-Apr	20-May	20-Jun	20-Jul	Sum
Periods X	13	14	15	16	17	18	19	20	21	22	23	24	300
Deseasonalized Y	289	296	250	277	275	360	419	377	290	304	297	358	6,597
X * Y	3,757	4,141	3,753	3,628	4,673	6,479	7,955	7,533	6,080	6,691	6,833	8,581	87,762
X * Y	169	196	225	256	289	324	361	400	441	484	529	576	4,900
Y *Y	83,504	87,469	62,603	51,425	75,556	129,556	175,291	141,860	83,831	92,510	88,253	127,838	1,913,807
Forecast	388	392	397	402	406	411	415	420	425	429	434	438	

a = 217.269
b = 4.608
y = x*4.608 +217.226

Using the formula above, enter x=25,26,27. That corresponds with each period up to 12 months into the future and provides you with the linear trend forecast shown in the diagram on the next page.

Step 3: Seasonalize the data with the trend forecast

Take the linear forecast and multiply by the seasonal trends for each period, and you get the forecast as shown below:



Now you have a forecast that has picked up trend growth as well as seasonality. The only thing that remains is to add in-market knowledge or promotional information to round out the forecasting process.

Review and enter market info

Hold a meeting with key stakeholders to review the key forecasts and to: enter market information; new product forecasts; any promotional impact on individual forecasts; and the cannibalization of other forecasts.

This will allow you to gain a richly detailed view of stock, product and status that will significantly impact on the accuracy of your forecasting.

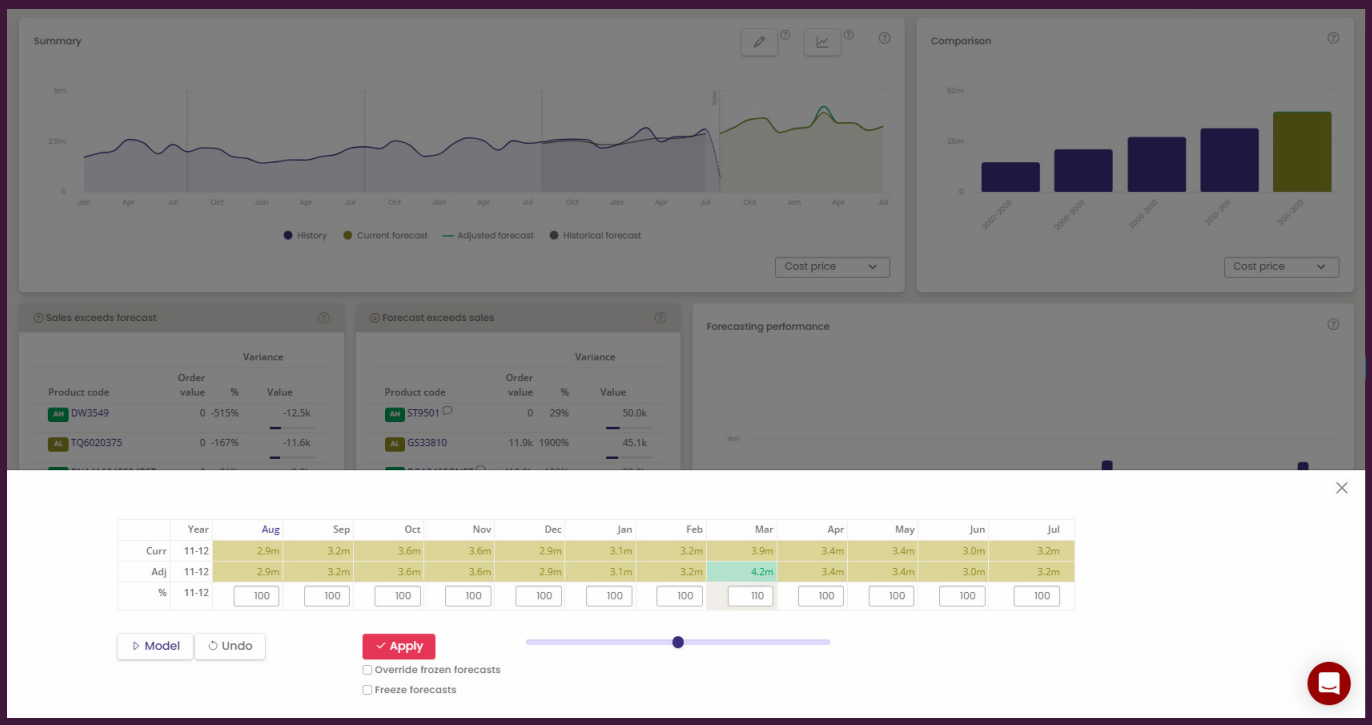
Macro review and adjustment

Once the baseline forecasts have been agreed on you can review them at a macro level by adding up all the forecasts multiplied by cost price, selling price, or margin.

The summary you have now created will allow you to adjust the proration mechanism that will give you the insight you need to raise or lower the forecast in a specific period, as shown below:

Original forecast summary at cost

Adjusted for 10% growth in March



Monitor forecast performance

Many methods can be used to monitor forecasting performance, and one of them is to distill the bias between over- and under-forecasting.

This measure compares the forecast vs. the actual sales and computes the difference between them in units. The units are then multiplied by the item cost and summed up for all over-forecast and under-forecast items separately. These totals are then divided by the total cost of sales to produce an over- and under-forecast percentage.

Here's an example:

					Units		$ Value	
Item	Forecast	Sales	Cost $	Cost of sales $	Over	Under	Over	Under
Item 1	100	90	2	180	10		20	
Item 2	150	200	4	800		-50		-200
Item 3	125	100	10	1000	25		250	
Item 4	200	170	8	1360	30		240	
Item 5	150	220	6	1320		-70	0	-420
Totals				**4660**			**510**	**-620**

Error	%
Over-forcast %	11%
Under-forecast %	-13%
Total Error	24%

This measure is very harsh as it is a zero-based error measure, but it's useful because it highlights key impacts on inventory health. A heavy bias towards under-forecasting will lead to stock-outs, and a bias towards over-forecasting will lead to excess stock.

The goal is to reduce overall error as much as possible while keeping a reasonable balance between over- and under-forecasting.

Exception reporting

If you keep your forecast history, then you can always compare the current forecast to the actual sales demand and compute the variance between them for any period or periods. Once you have the variance, then you can rank forecasts in descending order of dollar variance.
This approach means that you are always focusing on items that will create the largest financial value of excess or cause the biggest currency stock-outs.

Forecast process

By adopting a structured monthly review following the steps listed above, you will be able to get the best of both worlds in terms of:

- Statistically created baseline forecasts; with,
- Market and sales input.

\ Safety stock

Why holding the right safety stock is so important

If your suppliers always delivered the products you needed in full and on time, and if you could correctly predict when the customer will require the stock, you wouldn't need any buffer or safety stock at all. You would plan to have the product come in as soon as the customer walked through the door. You could work in real-time, delivering stock just in time (JIT) and never run the risks or face the challenges of stock balancing.

But that's not the real world.

The real inventory risks

The purpose of **safety stock** is to protect you from the two major inventory risks in your business:

- **Forecast risk** – Your inability to always forecast 100% accurately.
- **Supply risk** – Your supplier's failure to deliver on-time and in full.

Forecast risk - the most significant risk in forecasting is that you sell more than you thought you would. That leads to stock-outs, lost sales, and unhappy customers. If you continually sell more than you forecast for an item, it's a good idea to keep more safety stock for that item so that you can still sell it, and you're prepared if sales exceed expectations.

Similarly, supply risk is when your supplier habitually delivers late. If you keep some safety stock on hand, you can keep selling the product in the time between when the supplier said they would deliver and when they actually deliver.

Suppliers have another risk: under-delivering. If your supplier is prone to delivering short quantities, you should keep some safety stock to make up for the number of units they typically under-deliver.

Measure and react to risks

To ensure you cover these risks, you have to measure them. You cannot rely on a gut feel or your best guess. Forecasting must be accurate for the system, and the people and stock involved must be tracked and measured and factored into the safety stock calculation. Your supplier's reliability for delivering the correct quantities at the right time should also be measured and tracked. This needs to be done per product, per warehouse, to get to the right levels when planning the correct buffers of stock to carry.

Inventory policy

Inventory policy can be defined as balancing your inventory investment with your desired service level to your customers.

Typically, if you want better service levels, you'll have to invest more money in inventory. The alternative is that if you want to save money in inventory, your service levels can suffer as a result.

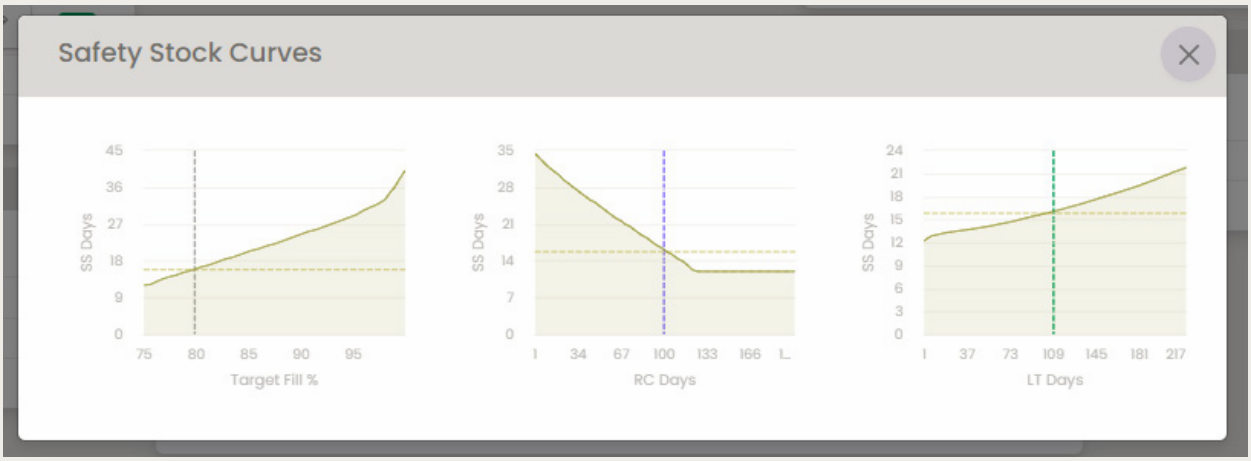
Sometimes, you can have it both ways. By investing your money in the correct items (like your A items) and taking investment away from the less important (like your C items), you can save money and provide better service levels to your customers.

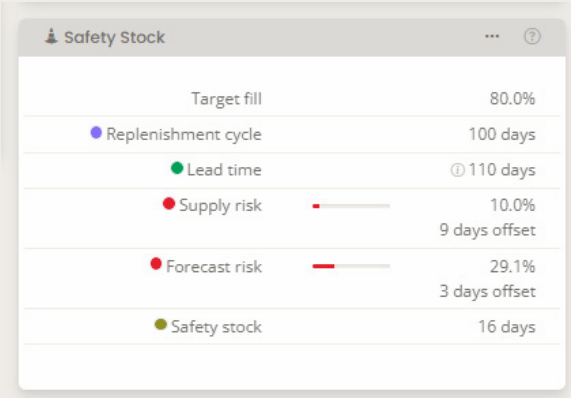
The way to flex your inventory policy is also through safety stock. Your service level will improve if you carry more safety stock on an item, but that requires you to have cash tied up in your warehouse. The less money you invest in safety stock, the better your cash flow, but this can impact on service levels.

Your target service level is a large component of your inventory policy. The other two important inputs to the safety stock calculation are your replenishment cycle (when and how much inventory do you buy) and your lead time (how many days it takes for the inventory to arrive in the warehouse once you place an order).

Here's a summary of the inputs for a good safety stock number:

1. **Replemishment cycle -** The shorter the cycle, the more safety stock you need to have (frequent, small deliveries are riskier)
2. **Supply risk -** The more a supplier under-supplies or delivers late, the more safety stock you need to have
3. **Lead time -** The longer the lead time, the more safety stock you need to have
4. **Supply risk -** The more a supplier under-supplies or delivers late, the more safety stock you need to have
5. **Target service level -** The better service you wish to provide your customers, the more safety stock you need





Keep it dynamic

The problem with how most companies set safety stock is that they adopt a set-and-forget mentality.

They set safety stock to a blanket four weeks across all items in a group in January, for example, so by September no one has reviewed that decision and they are either sitting on mountains of excess inventory, or their customers are buying elsewhere.

You have to regularly review your safety stock levels because either your risks change, your forecasts change, or your business objectives change. It would be ideal to review them daily, but this requires a reliable automated system to ensure it is done correctly.

What you can do to change that today

You may be a little stuck on the simple things you need to do to help improve your safety stock. All this information makes sense, but what should you do today to make a difference?

Let's start with the basics you need to consider if you do not have the technology and tools that can do all the math at a product-per-warehouse level:

- **Calculate the forecast accuracy per group of products**. You cannot get to a product level with this approach but start with a view of total sales against what was expected per product group. This indicates whether this is predictable or not, and it can be categorized as a Very High, High, Medium, or Low error per group.
- **Estimate the supplier reliability per preferred supplier**. Go through your suppliers and talk to the team to categorize the supplier reliability, both in quantity and date delivery, into Very Bad, Bad, OK, Good and Excellent.
- **Create a schedule of all products per warehouse that you want to carry safety stock for.** Make sure to include the lead time, preferred vendor, and the product group for each. Add to that the ABC classification done earlier.
- **Create extra sheets for the forecast accuracy estimate** per group and the supplier list and reliability so that you can create a VLOOKUP (a function in Microsoft Excel that always looks up the value in the leftmost column of a table and returns the corresponding value from a column to the right) in Microsoft Excel later for this.
- **In these additional sheets, allocate a percentage to each of the categories created for the supplier risk and forecast accuracy.** These will be applied later to the safety stock calculation, so make sure to enter these as a fraction. For high supplier risk, you would use 0.9, for example, as a factor. For low risk, you would use something like 0.5. For forecast error, a high error could be 0.9 and a low error 0.5.
- **Allocate a fraction against the ABC category you created** and set, for example, the A category as the one where you want the highest protection at 0.9 and the C category at something like 0.7.

- **Update the main schedule per product per warehouse** to lookup the fractions for ABC, supply risk, and forecast risk, and then add a calculation that takes the lead time in days or months and multiplies this by the fractions you just looked up. This is your safety stock in days or months that can now be applied to the forecasts to calculate the buffer needed.

This process will help you develop a safety stock per product that is variable, based on a risk assessment of supplier performance, and provides a measure of forecast accuracy. This is not the ultimate formula and there are many textbook examples of more advanced calculations you could apply if you have the resources and tools to do so. However, this will give you a starting point that you can use to improve this thinking as your tools and experience improve.

\ Setting your inventory policy in line with realistic targets

Setting objectives and goals for your inventory is fundamental to business success. This is your inventory policy and it can transform your inventory management processes and successes.

Inventory policy is all about **balancing** two things:

- Investment in inventory;
- Service level to your customers, sometimes called the fill rate.

Conventional wisdom would have you believe that the better service level you want to provide to your customers, the more money you have to invest in inventory in your warehouse.

On the other hand, if you want to save money in your warehouse, your service level to customers will almost certainly suffer.

Recall the first section when you classified your inventory? If you invest your money in your A items and take investment away from your C items, you can achieve your goals. You don't have to stock as much of the inventory that your customers don't buy from you regularly, but you have to invest more into the inventory that your customers do buy.

In principle, this sounds simple, but how?

Defining a stocking policy

The only practical way to set a stocking policy is to define these two things:

- What service level you want to provide your customers.
- What kind of replenishment or order cycle you want to use.

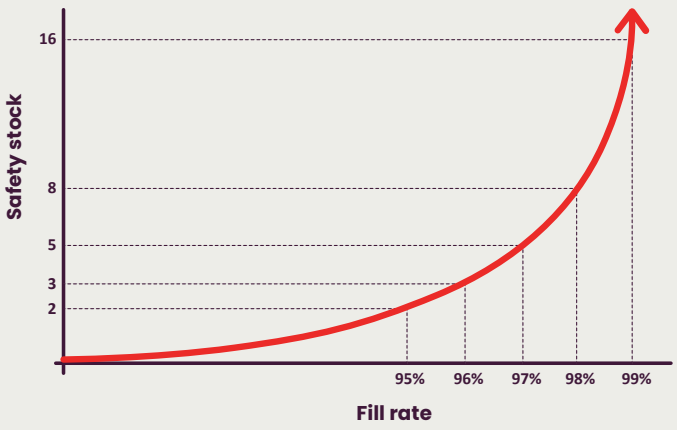
These are inputs to the safety stock calculation - the best way to control your stocking policy is by setting the correct safety stock.

To achieve better service levels for your customers while saving money you have to set a different stocking policy for every item classification. Here's an example:

- **A-items: service level target of 97%, replenishment cycle of 2 weeks**
- **B-items: service level target of 92%, replenishment cycle of 4 weeks**
- **C-items: service level target of 85%, replenishment cycle of 12 weeks**

What does that mean?

Let's take the A items: You want to aim for a pretty high service level of 97%. That means that when a customer orders an A item, you want to supply that customer immediately, 97% of the time. Be careful with setting this too high; there's an exponential function of service level vs. money invested. Just one percentage point higher may cost you as much as double the inventory to achieve! Note that you can never aim for a 100% service level because that would mean an infinitely larger warehouse.



The replenishment cycle of two weeks means that whenever you order A items from your supplier, you want to order two weeks' worth of forecasted sales. You will place smaller, more frequent orders as a result. This is a good idea because it keeps your cash flow requirements low. Even if your supply lead time is more than two weeks, you can still have more than one order in-flight at any given time. The problem with making the replenishment cycle too short comes when other costs, like admin and shipping, for example, start dominating the overall order cost.

Now look at the C items: These are the complete opposite. A low service level here is acceptable because these items are in low demand, and if you lose the sale of one of these, you won't lose a high-profit deal. Why the large replenishment cycle? Well, if you're going to bother reviewing the order requirements for C items, you might as well buy a bunch of them and forget about them for a while. The only time you'd want to shrink the replenishment cycle for these items is if they are large and hard to warehouse or because of cash-flow constraints.

Using these two inputs combined with every item's risk factors, you can calculate a safety stock level for each item.

The safety stock will be your ideal minimum level. The safety stock and replenishment cycle will define your maximum levels. Halfway between the minimum and maximum level lies your **model stock level**.

If you sum the model stock levels for every item in the warehouse, you'll arrive at the total ideal investment in inventory for the whole warehouse. If that number is too expensive for you, you can start making the target service levels lower to reach a t**arget inventory value**. At least now you know precisely what the consequences of your decisions are.

Let's get practical

Does all the above make sense but sound impossible to do? With the **right tools** at your disposal, this becomes a lot easier. However, if the only tool you have available now is a spreadsheet, you'll need some tips and ideas to make this all work.

Measure the actual fill rate

Of course, tracking this daily with every order is the best answer, but let's start with something to give you an idea of where you are per group:

- Load your items with their current net stock (physical stock less any customer backorders that should have been shipped already) per warehouse into your spreadsheet.
- Carry forward the groups and the ABC classification you did earlier into separate sheets.
- Create a simple VLOOKUP formula to get this all onto one data sheet so you can see what the net stock is per product with the product's ABC classification, average forecast, and unit cost.
- Create a **potential forecast *value*** per item as the average forecast multiplied by the unit cost.
- Create a little **"if" statement** that tests if the stock is zero or less and make that a zero, and if the stock is greater than 0, make that a 1 – this is a Boolean indicator to show if the item has stock or not. You can get more detailed with this later, but this is a good starting point.
- Take this stock-out flag and multiply it by the value of the average forecast to get a **weighted forecast result**. Add that up per ABC (or other groupings if you want) and divide by the potential forecast value to get an achieved fill rate per group.

It's advisable to do this analysis each week to determine if this is getting better or worse using the policy parameters you have for ordering. If the result is not as great as you wanted, consider higher factors in the safety stock calculation mentioned earlier in the eBook.

Value of the orders

It may not just be the result of previous orders that you want to consider. When you amend these parameters, you change the next order. It is essential to consider whether you can afford to buy against the policy set. Make sure to check the resulting orders created by the policy you set here and assess if this is affordable now. Consider smaller replenishment cycles for the products and perhaps lower service levels so that you can gradually improve the results in your business, at a pace that you can afford.

\ Effective ordering

Effective ordering to reduce excess and minimize stock-outs

It doesn't do you any good to have a meticulously crafted inventory policy if your ordering process is haphazard. You have to place purchase orders in line with your stocking policy; otherwise, you're going nowhere.

Different classes of items should be ordered differently.

Obsolete items

Never order these! Even if your supplier gives you a good deal or a good incentive, don't order them. They will only gather dust in your warehouse and cost you money. Ultimately, you're going to throw these items out and write them off.

Non-stocked items

Only order these if your customer has placed an order for them and you don't have enough inventory to fulfill the customer order.

Don't order a single unit more.

All other items

Remember the minimum and maximum levels you calculated previously? Just a reminder: the minimum level is your safety stock level in days. The maximum level is the safety stock level plus the replenishment cycle in days. You should identify all items that are below the minimum level and order them.

One small complication here is the lead time in getting the items from your supplier. You have to find the items that will be below the minimum level after the lead time. That way, if you order those items today, the stock level will be at the minimum level the day the next shipment arrives from your supplier. At that point, the safety stock should buffer you from late deliveries, under-deliveries, or under forecasts.

An example:

Let's say you have an item forecast to sell 100 units per month, every month and this is your policy:

Lead Time – 20 days
Safety Stock – 15 days
Replenishment Cycle – 30 days

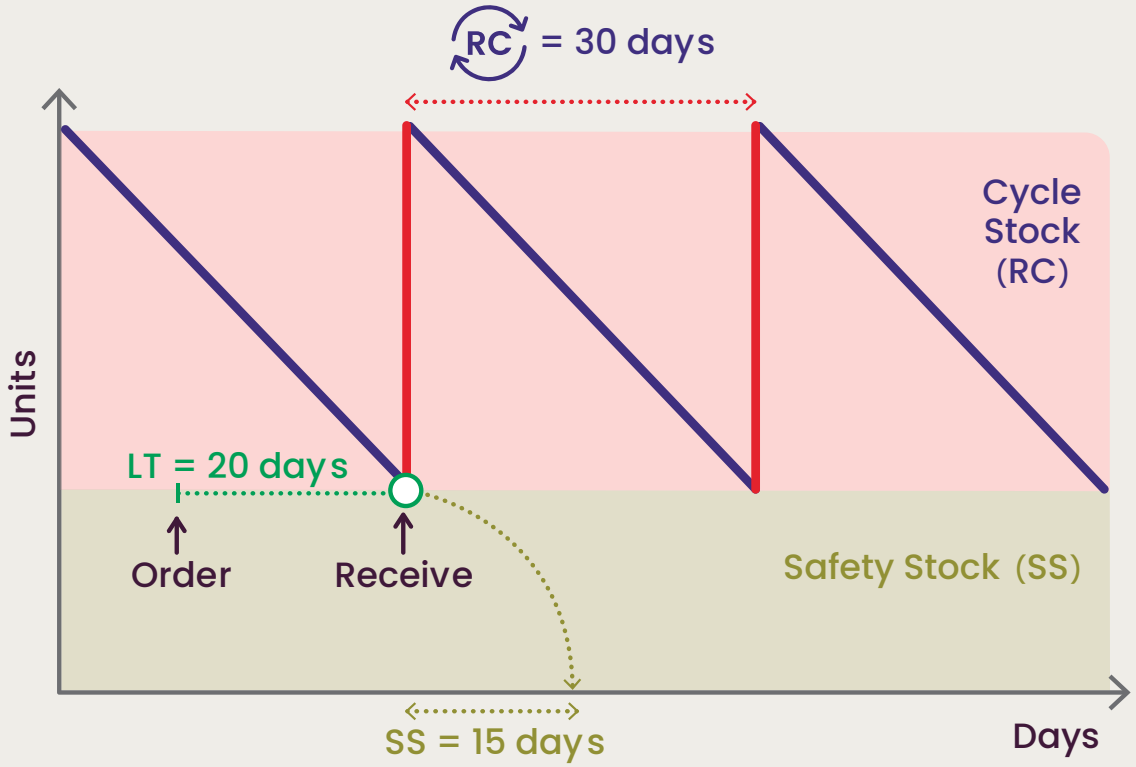
From order placement until the end of the Lead Time, according to the forecast, you would sell 67 units (20 days at 100 units per month). The safety stock for the item would be 50 units (15 days at 100 units per month). Therefore, the trigger to determine when an order should be placed can be calculated as:

\ **RE-ORDER POINT** = Lead Time (67 units) + Safety Stock (50 units) = 117 units
If your current net stock position (stock-on-hand + on order) is less than the re-order point of 117 units, you need to place an order now. Let's say your net stock is 110 units – this is below the re-order point of 117 units, so, next you need to calculate how much to order? Add your Replenishment Cycle to your re-order point to calculate an ORDER UP TO level. That's another 100 units (30 days at 100 units per month).

\ **ORDER UP TO** = RE-ORDER POINT (117 units) + Replenishment Cycle (100 units) = 217 units
To calculate the recommended order in this instance:

\ **RECOMMENDED ORDER** = ORDER UP TO (217 units) – Net stock (110 units) = 107 units
By placing an order of 107, you will drive your inventory level towards your stocking policy.

Of course, there may be other factors that influence the order. Your supplier may have some constraints in place, such as a minimum order quantity or pack size. These constraints may force you to order more than the number you ideally require.



Filling a container

The above example is suitable for calculating the perfect order for a single item. But you probably want to order all the items from a specific supplier at the same time. You could set up a spreadsheet to calculate the recommended order for all the items supplied by a particular supplier. This will form the basis for the purchase order you'll create in your ERP system. There may be more manipulations that you have to perform.

Here are some examples:

You may need to fill containers before the supplier ships anything to you. However, the last thing you want to do is just randomly add items to the order or add items where the supplier may give you a considerable discount.

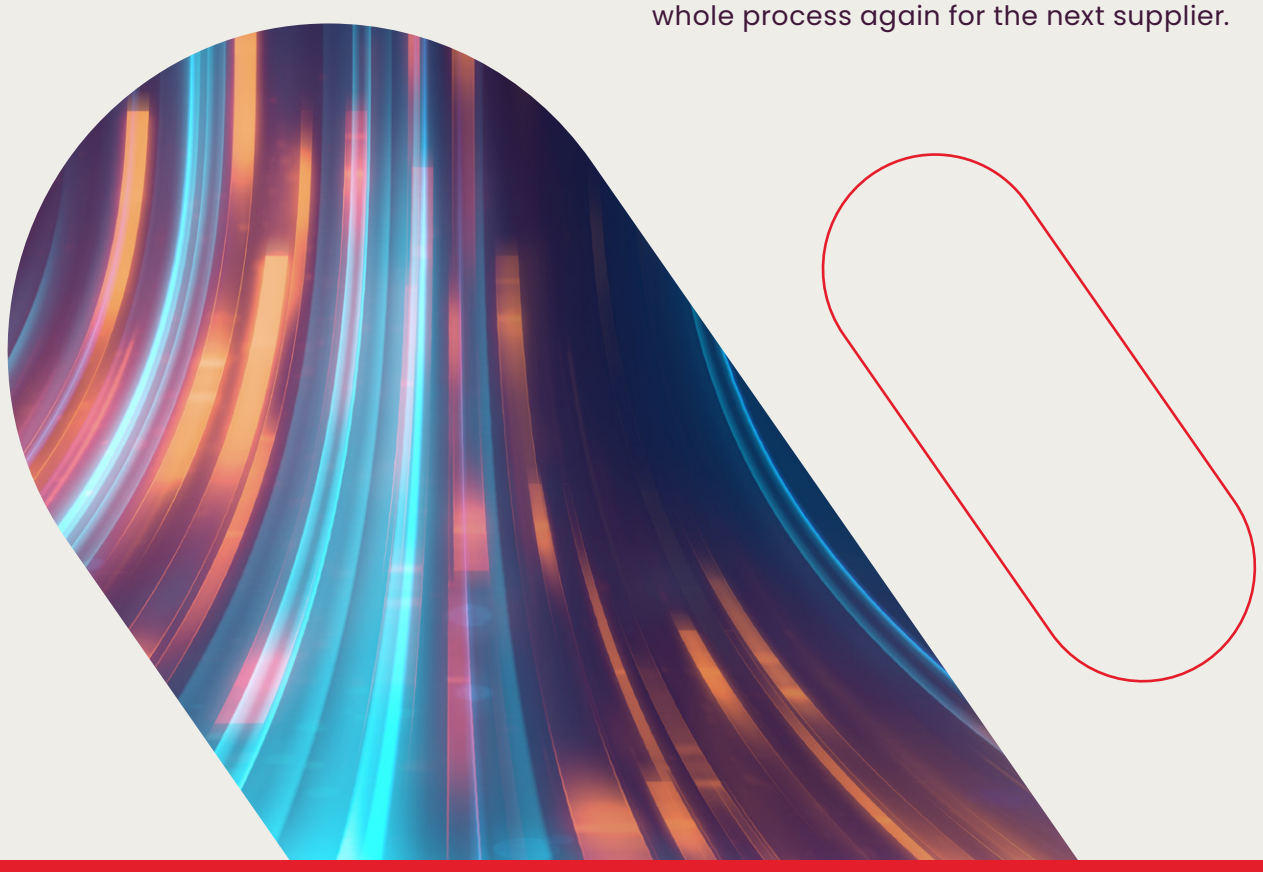
One of the best strategies to add more items to the container is to look at items where the available inventory is still above the re-order point but is under the order-up-to point. These items will come up for ordering in the next order cycle. For each of those items, you can simply place an order for the difference between the order-up-to level and the current inventory level. Keep adding the most important items first (think of your A items) until you've met the container size constraint.

Using this method, you will still drive your inventory levels towards your ideal stocking policy, but you may be slightly in excess of certain items. Make sure you're in excess of high-velocity items so that the excess situation won't last too long.

Back to ERP

Once you have your spreadsheet of recommended orders, you can open up a new purchase order for that supplier in your ERP system. Capture the products and their order quantities from the spreadsheet into the purchase order and double-check that you have not made a mistake. These can be very costly, especially if you capture the wrong product code or order quantity.

Once you're happy with the ERP's purchase order, you can send that off and start the whole process again for the next supplier.



\ Exception-based inventory management

Inevitably, there will be items that are not performing well and you'll have to fix problems with those items. Remember the essential steps in inventory management:

- Classify products to focus on the most important ones first and to set appropriate inventory policy.
- Forecast products so that you can plan today for what you're going to sell in the future.
- Set proper safety stock levels to guard you against the risk of bad forecasts and unreliable suppliers.
- Define an appropriate stocking policy that aligns with your goals of customer service levels and investment in inventory.
- Place effective purchase orders that will implement your stocking policy.

But how do you go about managing the exceptions?

These problems generally fall into one of two categories:

- They affect your **stocking levels** – you're spending too much money keeping them in the warehouse.
- They affect your **customer service levels** – you cannot supply your customers when they order the items.

Interestingly, those two categories are the same categories you use to set a stocking policy. If you can fix these, you will get closer to your ideal stocking policy.

Here follows a list of the kinds of problem items that will need daily attention.

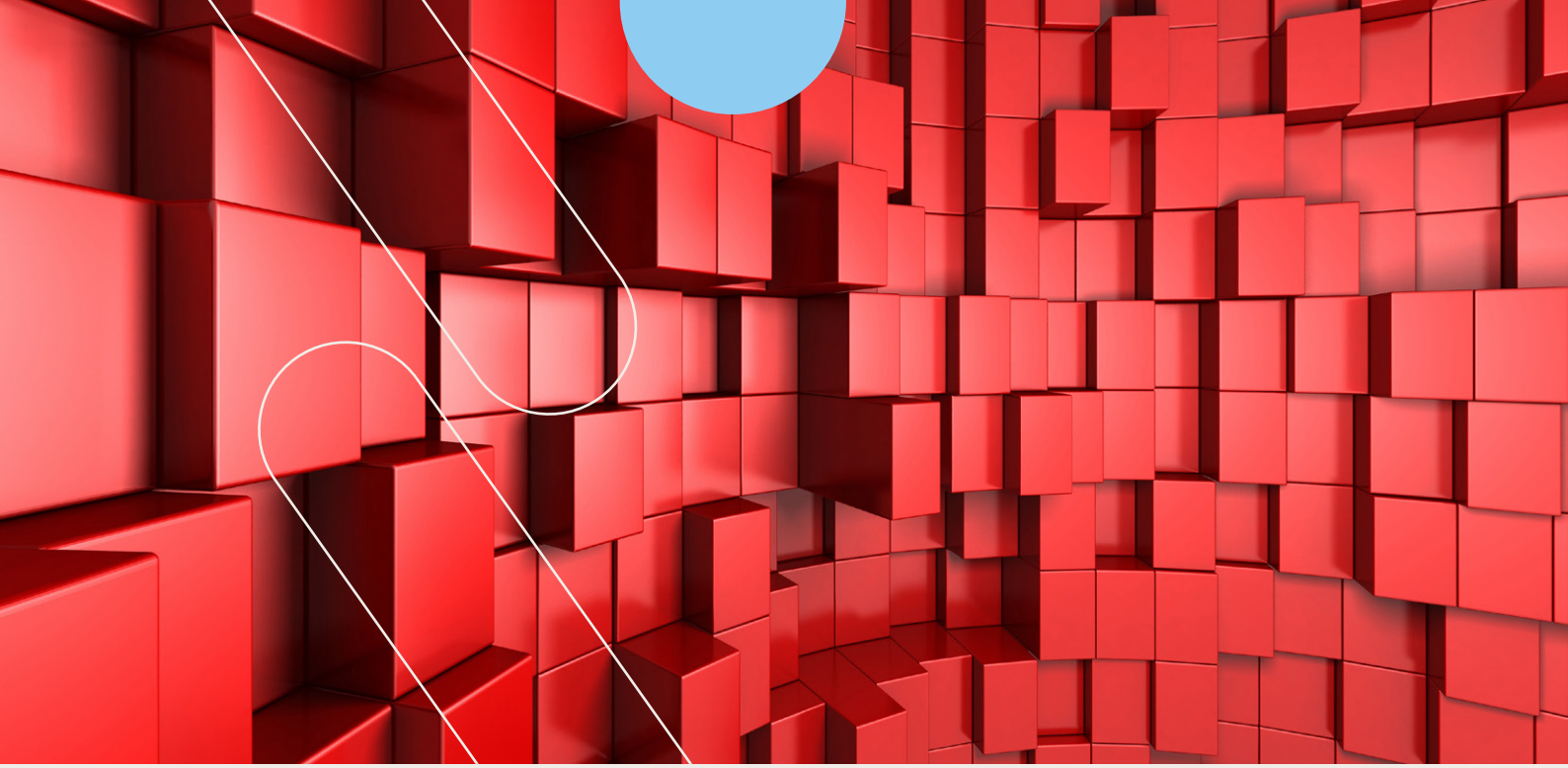
1. Excess inventory

These are items where the current stock-on-hand is greater than the maximum level you calculated when defining your stocking policy. The number of units of excess is simply stock-on-hand – maximum-level.

Excess inventory is **bad** for your bottom line because:

1. **You have to warehouse it, costing you money**
2. **You have to insure it, costing you money**
3. **Its value depreciates over time, costing you money**
4. **A large chunk of working capital is tied up in dead stock, costing you money**
5. **You have to keep counting the same stock over-and-over, costing you money**
6. **It breaks, expires, or gets stolen, costing you money**

To **fix** this, you have to get rid of the **excess items**. This may mean that you have to sell them at a steep discount or even write off this inventory.



2. Surplus orders

These are items where you've placed purchase orders surplus to your forecast demand. When those items arrive in your warehouse, they will be in excess.

The way to calculate if you have surplus orders is to look at an item as if no purchase order has been placed, then work out what you would ideally order today. If your existing outstanding purchase orders are more than what you would order today, you've ordered too much. The difference between the purchase orders and the ideal order is your surplus order units.

Surplus orders are **bad** because they take perfectly good working capital, turn it into inventory, and then store it in the warehouse for a long time.

To **fix** this, you will have to either cancel or delay the orders or split the orders into multiple drops that are more in line with what you require when you require it.

Do anything you can to prevent those items from landing in your warehouse.

3. Stocked-out items

These are items where you have zero net stock (on-hand less any allocated stock and backorders) and have demand for those items (customer orders or forecast demand). The number of lost sales units for the item is the forecast demand until the first purchase order arrives, or, if you don't have any purchase orders, the forecast demand over the lead time for this item.

Stocked-out items are **bad** because:

- You lose the sale of the product.
- The customer may decide to buy their whole basket of products from your competitor.
- Your competitor may give your customer excellent service, and now you've lost a customer for life.

To **fix** this, you will have to bring an existing purchase order forward or place an emergency order. This may involve not using your preferred supplier or using air freight instead of sea freight. It may even involve you purchasing from your competitor. It may cost you more to buy emergency supplies, but it may be worth the expense to prevent losing the sale (or the customer).

4. Potential stocked-out items

These are items where you do have stock on hand, but you will run out of stock before the next order arrives in your warehouse.

The way to predict these items is to project how long your current stock on hand will last based on your forecast. If that date is before the first purchase order arrives, or a purchase order you place today will arrive, you have a problem. The number of forecast sales in that time frame is the potential number of sales you will lose.

Potential stock-out items are **bad** for the same reasons as stocked out items. At least now you have a little bit of time to do something about it before you run out of stock.

To **fix** this, you will also have to place an order or bring an existing order forward. Depending on how soon the stock will run out, you may have to place an emergency order. You may also be able to move inventory from one warehouse to another as a short-term fix.

\ In conclusion

If you put into practice what you have learned in this eBook, you can expect to see the following business benefits:

\ Make more sales

Because you have the right inventory at the right place at the right time.

\ Reduce cash flow requirements

Because you won't stock the wrong items.

\ Fight fewer fires

Because you will have a good system to place purchase orders on your suppliers.

If you are using spreadsheets to manage your inventory and find that this is becoming too time-consuming, error-prone, and complicated and you aren't seeing the results you were hoping for, **get in touch with a Netstock inventory specialist** to transform your inventory management with the right tools and technologies.

Find out how we can help you transform stock and profit with our intelligent tools and solutions, designed to help companies of all sizes transform their bottom line and their business.

Let's Talk