

Causes of demand volatility and how inventory optimization software can help

A guide to addressing demand volatility within your supply chain



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Introduction to demand volatility

“ Responding to the customer can be achieved with cost overruns, excessive inventory and firefighting, but to respond profitably means understanding the sources of volatility and planning for them appropriately. ”

Gartner Research, August 2011

Despite this being an old quote, many companies still struggle to meet customer demand for their products profitably and prevent stockouts - without holding excess stock. In addition, they find themselves relying on costly rushed orders or backorders to keep customers happy.

The heart of this problem is often an inability to predict and understand demand volatility.

If these challenges sound familiar, this eGuide will help you to spot the causes of demand volatility and explain how using inventory optimization software to forecast your demand will allow you to:



Lower inventory levels



Ensure product availability and hit service levels

Many companies make the mistake of thinking that because demand for their products is volatile and fluctuates, it is unpredictable and a 'bad thing'.

This is not the case.

Healthy market factors, such as growth, fashion trends or seasonality, often cause demand volatility. With the right inventory management tools, it's easy to forecast and plan for volatility.

By implementing effective demand forecasting practices, you can have the right products available to meet customer demand without carrying too much stock.



Sources of demand volatility

To fully understand demand volatility and its influence on inventory forecasting, planning and replenishment, you need to look both inside and outside of your business.

External factors causing demand volatility

Market trends

Economic, social, legal and technological factors all cause demand to rise and fall over time. In markets where technologies and fashion trends move quickly, trends will come and go, and demand will rise and fall dramatically. Slower-moving industries may see less erratic trends for most products.

Sometimes trends will affect one product, sometimes a whole group. Regardless, the key is to be able to detect trends at an aggregated level but execute any actions at SKU level.

Seasonality

Unlike trends that happen over time, seasonality is cyclical, and demand will peak for a while before dropping back off. This pattern reoccurs, usually over the course of 12 months. Examples of seasonality include the increase in swimwear sales in summer or stationery before children go back to school.

By applying suitable forecast calculations for either subtle or extreme seasonal patterns, you can manage seasonal demand volatility with relative ease.

Causal factors

Natural events are uncontrollable, and, as we saw with COVID-19, they can cause demand volatility.

There's no golden answer to a major disaster, but you can handle most incidents with a smart inventory forecasting and planning system. Well-defined safety stock levels, visibility of inventory across the supply chain and alert reports will allow you to quickly get an overview of the situation so you can respond accordingly to demand spikes.

Intermittent demand

It's notoriously difficult to forecast and plan for irregular and sporadic demand. Therefore, detecting products with slow or lumpy demand patterns is critical so you can manage them differently from other products.

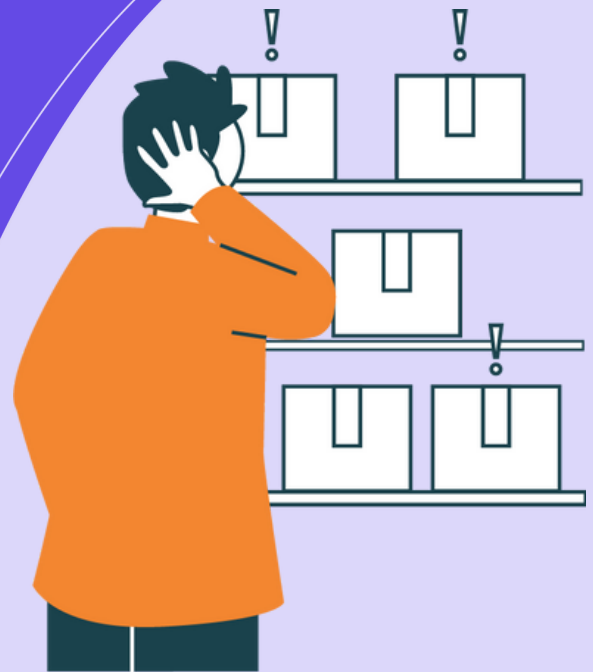
Products that exhibit slow and lumpy demand patterns must be assigned specific forecasting algorithms that are different to those for fast-moving products, to prevent overstocking.

Promotions

By their nature, sales promotions will increase the number and sometimes the size of customer orders. When forecasting, it's essential to accurately identify and separate your baseline demand from your promotional demand to avoid over-forecasting for the next period. By successfully detecting and excluding promotional peaks, you'll achieve greater forecast accuracy with less excess inventory.

New products

It's a fact that it's difficult to forecast a product's demand without historical sales data.





So, when forecasting demand for a new product, it's wise to base your predictions on similar products or your knowledge of its application and the marketplace.

When a new product supersedes an old model, you can apply the demand history of the product being replaced to the new one.

Forecast bias

Forecast bias occurs when teams continuously over or under-forecast. There could be a number of reasons for this, including over-optimism from a sales team, using anecdotal information instead of hard data, or favoring recent data over the full data set.

To prevent forecast bias, you should always base your demand forecasting on actual historical demand data combined with qualitative input from people across the business based on specific market knowledge.

Bullwhip effect

The bullwhip effect describes how a small fluctuation in demand at the top of the supply chain, e.g. retailing to customers, can have a growing impact on wholesalers and manufacturers further down the chain - like the effect of a small wrist movement to a large whip cracking.

Example:



ABC Stationery keeps 100 pens in stock. They usually sell 20 pens a week and re-order the same amount. One day they sell 80 pens. Worried about selling out, they adjust their forecast and start re-ordering 50 pens a week.



Their distributor spots the increase in demand and, concerned about being out-of-stock, orders 100 pens from their manufacturer.



To ensure availability against the new demand, the manufacturer increases this customer's forecast to 150 pens a week.

This can also happen at company level - for example, from the point at which an outlet requests stock, to the planner predicting demand and the factory forecasting production.

Consequently, the bullwhip effect can increase demand volatility, inflate safety stock, create excess inventory and cause poor manufacturer or supplier performance.

Demand volatility indicators

How can you identify if demand volatility is impacting your business?

Here are some tell-tale signs:

- Poor forecast accuracy
- Excess and obsolete inventory
- Frequent emergency or expedited orders and backorders
- Stock-outs
- Low service levels

The above issues often result from using manual-based inventory planning processes that rely on spreadsheets or the core functionality of an enterprise resource planning system (ERP). Neither are sophisticated enough to keep up with demand fluctuations.

One option is to look to inventory optimization software to improve your forecasting and alleviate the impact of demand volatility.



Review, adjust, repeat



How inventory optimization software **can help**

Fortunately, new planning tools can help tackle demand volatility for small- and mid-sized businesses. Inventory optimization software, such as EazyStock, takes demand forecasting to another level.

Inventory optimization software plugs into ERP or a warehouse management system (WMS) to automatically forecast demand for every SKU in your warehouse. It combines historical sales data with complex algorithms to predict demand. It also considers factors such as seasonality, trends and intermittent demand in the calculations.

Benefits of inventory optimization software

Improved demand forecasting

By constantly monitoring forecasts and forecast accuracy at SKU-level, inventory optimization software automatically responds to changes in demand. This means you can minimize the effects of demand volatility for every item in your warehouse.

Fewer stock-outs

With visibility of your forecasted demand and current inventory levels, supported by accurate alert reports, you can foresee stock-outs and take preventative actions to maintain product availability.

Minimized inventory

Dynamic forecasting data automatically updates safety

stock levels and order quantities. This allows you to maintain the lowest possible inventory levels for each SKU's chosen target service level.

Lower working capital

As you only order what you're forecasted to sell, you can reduce excess inventory and release working capital previously tied up in stock.

Market responsiveness

Whether it's a fashion trend or a seasonal demand peak, spotting fluctuations in demand early on will allow you to react quickly and optimize sales.

Better decision making

With accurate forecast data, you can make informed short- and long-term decisions about your product mix, replenishment and ordering needs.

Operating cost savings

Accurate forecasting and replenishment planning let you significantly reduce the costs associated with expedited orders and backorders.

Operational efficiency

By removing the need for manual spreadsheets or ERP workarounds your team will be more efficient. With the ability to manage by exception, they'll spend less time producing forecasts and more time acting strategically on the data provided.

Competitive advantage

Lower working capital requirements means you'll have more cash in the bank to invest in strategic growth plans.



Summary

Demand volatility can significantly impact the accuracy of your demand forecasts. Therefore, it's important to spot when it may be affecting your business.

As many factors can cause volatility in demand, it's wise to check your forecasts regularly for variables such as seasonality, trends and forecast bias. At the same time, you need to understand how to forecast for when you have promotions or new products.

While ERPs and WMS may have some inventory management capabilities as part of their core functionality, demand forecasting is much more complex than simply calculating a three-month running average and using this to predict future demand. You can read more about inventory forecasting techniques and methodologies in our [How to improve demand forecasting accuracy eGuide](#).

More and more small and medium-sized businesses are investing in [inventory optimization software](#), such as EazyStock.

EazyStock automates demand forecasting and inventory management, providing accurate forecasts that consider demand variables so inventory planning teams can manage by exception. This result in businesses holding less stock while improving their ability to improve product availability.

eazystock

Learn more about
inventory optimization

[Book a demo](#)