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BUSINESS GUIDE

15 Essential KPIs to Manage Supply Chain Volatility



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15 Essential KPIs to Manage Supply Chain Volatility

If uncertainty around tariffs, the rising costs of raw materials and componentry, labor market instability—or some combination—is limiting your ability to make strategic business decisions, one defense is to proactively manage your supply chain to increase efficiency and minimize expenditures. With that in mind, we've collected a set of key performance indicators around demand planning and procurement, production quality, inventory management and warehousing, and order fulfillment.

Demand Planning and Procurement

Accurate demand planning and procurement processes depend on historical data. Insights into past sales are essential in understanding what you can expect to sell in the future. The more data you have, the more accurate your forecasts become, because you're able to consider seasonality, promotional offerings, and changes in customer demand over time.

Successful demand planning and procurement come down to understanding what, when, and where you need items, helping minimize overhead costs while at the same time maintaining product availability. Top demand planning and procurement KPIs to monitor include:

1. Forecast Accuracy

What it is: Forecast accuracy is the difference between forecasted and actual sales over a specific period.

Why it's important: Accurate forecasts are crucial for making informed decisions about resource allocation, inventory management, budgeting, and strategic planning.

What it tells you: Forecast accuracy data helps identify areas where forecasting models are underperforming so you can work to improve accuracy and make better decisions.

How to measure: To measure forecast accuracy, calculate the percent change between forecasted and actual sales.

$$\text{Forecast accuracy} = 1 - (\text{Actual sales} - \text{Forecast}) / \text{Actual sales}$$

2. Lead Time

What it is: Lead time is the time it takes for an order to be delivered from the time it is placed.

Why it's important: Lead time is a key indicator for determining when to reorder goods so they're available when they are needed but not sitting on the shelf incurring additional costs.

What it tells you: Lead time is an important consideration when selecting a supplier and timing the placement of orders.

How to measure: Lead time is usually represented in days; to measure lead time, subtract the order date from the delivery date.

$$\text{Lead time} = \text{Delivery date} - \text{Order date}$$

3. Defect Rate

What it is: Defect rate, used as a procurement indicator, measures the percentage of a supplier's products or services that fail to meet quality standards.

Why it's important: Defect rate is an important quality indicator and key consideration when selecting a supplier. A low defect rate is desirable.

What it tells you: Defect rate helps evaluate suppliers by assessing their ability to consistently meet quality requirements.

How to measure: Typically, not every item in every order will be tested but rather a sample. The size of the sample lot will depend on the cost of testing, the time it takes, and the ramifications of defects.

$$\text{Defect rate} = 100 \times \text{Fails} / \text{Tests}$$

4. Total Landed Cost of Goods (TLC)

What it is: TLC sums up all expenses incurred in bringing a product from its origin to its final destination, including the cost of the product itself, shipping, insurance, customs duties, and taxes, as well as any other related fees, such as handling, storage costs, currency exchange, or any miscellaneous expenses incurred during transport.

Why it's important: TLC informs decisions about pricing, sourcing, and overall profitability.

What it tells you: TLC is a crucial profitability indicator. It provides a comprehensive view of a product's true cost, including all expenses from purchase to delivery.

How to measure: Total landed cost is calculated by adding the cost of the product plus other costs associated with getting the item from the supplier to its destination.

$$\text{Total landed cost} = \text{Unit of cost product} + \text{Shipping} + \text{Customs} + \text{Insurance} + \text{Miscellaneous fees}$$

Production and Quality

Production and quality metrics help businesses understand how their manufacturing processes are performing and identify areas for improvement. These metrics shed light on the makeup of cost of goods sold (COGS) and unexpected variances. They provide valuable insight into production efficiency, quality, costs, and customer satisfaction. Key production and quality KPIs to monitor include:

5. Cost of Goods Sold (COGS)

What it is: COGS is the cost of bringing a product to market. COGS includes all direct costs incurred to create products, including materials and labor, as well as expenses incurred for freight, duties, storage, and factory overhead, to name a few.

Why it's important: COGS directly impacts profitability and helps determine pricing strategies. By understanding COGS, businesses can accurately calculate their gross profit, set competitive prices, and manage their finances effectively. COGS is essential for many other profitability metrics, including gross profit margin and net income.

What it tells you: COGS helps businesses understand the direct costs associated with producing or purchasing goods sold. It's a crucial metric for assessing profitability and efficiency.

How to measure: There are many ways to calculate COGS; what is included and what isn't depends on how you plan to use the data. Most important is that you're clear on what you're including and why. A general starting calculation for COGS is:

$$\text{COGS} = (\text{Starting inventory} + \text{Purchases made}) - (\text{Final inventory} + \text{Returns})$$

Keeping in mind businesses who manufacture goods need to understand the costs of production and will use Cost of Goods Manufactured (COGM) to understand their starting inventory. COGM is generally calculated as:

$$\text{COGM} = (\text{Beginning WIP inventory} + \text{Total manufacturing costs}) - \text{Ending WIP inventory}$$

where:

$$\text{Total manufacturing costs (TMC)} = \text{Direct materials} + \text{Direct labor} + \text{Manufacturing overhead}$$



6. Days Inventory on Hand

What it is: Days inventory on hand measures how many days a business takes to sell through its inventory.

Why it's important: Days inventory on hand is a good point of reference for understanding how you're moving your inventory. Generally, the lower the number, the better the company is at selling its stock. Dropping too low could be a concern for stockouts, but overall, lower is what you're after as it indicates a healthy cash flow.

What it tells you: Days inventory on hand is a crucial metric for understanding inventory efficiency and liquidity. It's used to determine how efficiently a business manages costs and is also a useful tool in understanding forecast accuracy.

How to measure: Divide the average inventory on hand by the total COGS sold over a period and multiply the result by the number of days in your chosen period:

$$\text{Days inventory on hand} = (\text{Average inventory} / \text{COGS}) \times \text{Number of days}$$

7. Production Yield

What it is: Production yield is the percentage of defect-free units produced out of the total number of units that enter the production process.

Why it's important: It indicates a manufacturing process's efficiency and quality.

What it tells you: Production yield helps businesses understand how effectively their production process uses resources and achieves quality standards. A high yield means the process is running effectively, minimizing waste and producing more usable products. A low yield can signal problems with manufacturing procedures, equipment, or raw materials, leading to defects and rework. Yield helps identify when to work to improve processes, save resources, and reduce costs.

How to measure: Yield is calculated by dividing the number of good units produced by the total number of units started, then multiplying by 100 to express it as a percentage.

$$\text{Production yield} = (\text{Good units} / \text{Total units produced}) \times 100$$

Inventory Management

Effective use of inventory substantially affects the profitability of any products business. Striking the balance between having enough inventory to sell but not so much that you incur overhead costs for storing it is essential in maximizing your profit. Inventory management is more than just how many units you have on the shelf. Proper management requires data on turnover, sales, demand, costs, process success, relationships, and more. There are many inventory metrics businesses may choose to evaluate; some of the most impactful include:

8. Inventory Turnover

What it is: Inventory turnover measures how quickly a company sells and replenishes its inventory over a specific period.

Why it's important: It helps businesses assess their inventory management, identify potential issues like excessive stock, and understand the time it takes to sell and replace inventory. It can reveal trends, help optimize ordering quantities, and improve overall business performance by determining whether inventory is not accumulating.

What it tells you: This ratio indicates how efficiently a company manages its inventory and generates sales from it. A higher ratio generally indicates that a company is selling and replenishing its inventory more efficiently.

How to measure: It's calculated by dividing the cost of goods sold (COGS) by the average inventory for the same period.

$$\text{Inventory turnover ratio} = \text{COGS} / \text{Average inventory}$$

9. Inventory Carrying Cost

What it is: Inventory carrying costs are the expenses a business incurs for storing and maintaining inventory before it is sold. These costs include storage, handling, shrinkage and obsolescence write-offs, insurance, and taxes.

Why it's important: Handling costs are a part of COGS and often account for 20-30% of total cost of inventory. High carrying costs can unnecessarily tie up cash that could be better used in other parts of the business and have a significant impact on profitability.

What it tells you: Understanding inventory carrying costs helps determine whether you're running an efficient operation. High carrying costs could mean your organization has more inventory on hand than it needs based on demand, that you need to adjust the frequency with which you place orders with manufacturers or distributors, or that you could do better at keeping stock moving.

How to measure: Divide all expenses associated with holding inventory, known as holding costs, by the total value of all inventory held throughout the year and multiply by 100 to show as a percentage.

$$\text{Inventory carrying cost} = \left(\frac{\text{Total holding costs}}{\text{Total annual inventory value}} \right) \times 100$$

10. Sell-Through Rate

What it is: Sell-through rate measures the percentage of inventory sold compared with the amount of inventory received. It helps you understand how well a product is selling and optimize inventory management.

Why it's important: Knowing sell-through rate helps optimize inventory levels by identifying top-performing and slow-moving inventory items. Tracking it aids in accurate demand planning, and assessing supply chain efficiencies by understanding how quickly items are selling so you can accurately plan for future purchases.



What it tells you: A high sell-through rate signals strong sales performance and effective inventory management, while a low rate can point to issues like overstocking or poor demand for certain products.

How to measure: To calculate sell-through rate, divide the number of units sold by the number of units received and multiply by 100 to express it as a percentage.

$$\text{Sell-through rate} = (\text{Total units sold} / \text{Total units received}) \times 100$$

11. Average Inventory

What it is: Average inventory is a calculation of inventory items averaged over two or more accounting periods.

Why it's important: Calculating average inventory helps businesses understand their typical inventory levels, allowing for better planning related to storage costs, inventory management, and overall financial health. By averaging inventory over a period, businesses can identify trends, track inventory losses, and assess the efficiency of their supply chain.

What it tells you: Inventory levels fluctuate, so looking at a single point in time may not give you an accurate representation of how much inventory you will need for a given period. Average inventory can help by providing an overview for a given period.

How to measure: To measure average inventory, add the inventory at the beginning of the period to the inventory at the end of the period and divide by two.

$$\text{Average inventory} = (\text{Period ending inventory} + \text{Beginning inventory}) / 2$$

12. Inventory Shrinkage

What it is: Shrinkage is the difference between inventory that is recorded and actual inventory on hand. The difference measures a loss of inventory. Shrinkage can be a result of spoilage, shipping damage, manufacturing defects, shoplifting, vendor fraud, employee theft, or administrative error.

Why it's important: Every time inventory can't be accounted for or a reduction occurs from known causes, a business loses money—not only the cost of acquiring the inventory itself, but also the profit that would have come from those sales. Shrinkage also increases the chance of a stockout.

What it tells you: It's important to track shrinkage over time and understand what an acceptable level of shrinkage is. By tracking shrinkage rates over time, you can understand what is typical. Because some shrinkage is inevitable for any products company, it's also important to consider shrinkage when deciding how much inventory to order.

How to measure: Shrinkage is calculated by subtracting the actual inventory value on the shelf from the recorded inventory value.

$$\text{Shrinkage} = \text{Inventory book value} - \text{Inventory actual value}$$

Warehousing and Order Fulfillment

Fulfillment costs can make up a significant portion of overall inventory costs. How quickly an order can reach the customer is a key differentiator and competitive advantage. At the same time, warehouses are cost centers. Businesses seeking to keep more cash on hand may freeze or even shrink budgets for storage space, handling, and equipment. As a result, warehouses may need to increase output without additional resources. Warehousing and order fulfillment KPIs provide valuable insight into redundancy and use of manual processes as well as potential opportunities for increased efficiencies.

13. Average Order Cycle Time

What it is: From order to delivery, order cycle time is the time it takes for an order to be processed, prepared, shipped, and received by the customer.

Why it's important: Faster order fulfillment is a key competitive edge and component of customer satisfaction and loyalty. Additionally, improving fulfillment processes can save money on labor, inventory, and shipping costs.

What it tells you: Measuring and optimizing order cycle time helps businesses identify inefficiencies in their supply chains, allowing them to improve processes, reduce costs, and improve overall operational efficiency.

How to measure: Order cycle time is typically calculated as an average to provide a general understanding of the process speed.

$$\text{Average order cycle time} = \text{Total of order lead times} / \text{Total orders shipped}$$

14. Stockout Rate

What it is: Stockout rate measures the number of times inventory is out of stock.

Why it's important: Stockouts directly impact a business's financial health and customer satisfaction. A high stockout rate means that customers are commonly unable to purchase desired products, leading to lost sales, dissatisfaction, and potentially damage to a brand's reputation. Conversely, a low stockout rate indicates efficient inventory management and demand planning, leading to increased revenue and satisfied customers.

What it tells you: Stockout rate shows a company's ability to meet customer demand. A lower stockout rate is desirable, but must be considered with

other KPIs, like turnover, to ensure it isn't a result of another issue, such as holding excess inventory.

How to measure: Stockout rate is the number of stockouts divided by the total number of orders.

$$\text{Stockout rate} = (\text{Number of stockouts} / \text{Total number of orders}) \times 100$$

15. Perfect order rate

What it is: Perfect order rate is the percentage of orders that are delivered to the customer on time with the correct undamaged items and correct documentation.

Why it's important: A high perfect order rate demonstrates accuracy in the supply chain, leading to greater customer satisfaction and potentially increased customer loyalty. It also helps identify areas for improvement in the order fulfillment process.

What it tells you: A perfect order rate of 90% or above is generally considered excellent in most industries. Factors that influence the perfect order rate, include inventory management, order processing efficiency, packaging, and shipping logistics.

How to measure: The perfect order rate is calculated by dividing the number of perfect orders by the total number of orders then multiplying by 100.

$$\text{Perfect order rate} = (\text{Perfect orders} / \text{Total orders}) \times 100$$

Know Your KPIs

In the face of rising cost of goods and supply chain uncertainty, many businesses are taking a more conservative approach and keeping more cash on hand. As a result, reducing excess overhead costs and improving efficiency are at the forefront of business leader's minds as they look to safeguard profitability. This allows businesses to intelligently adjust processes to account for economic changes by understanding their financial impacts and downstream effects on the supply chain.

Successfully monitoring these and other KPIs requires accurate data. NetSuite's unified suite of solutions provides businesses with real-time visibility into financials, inventory management, and supply chain data. In addition, NetSuite offers industry-specific KPIs and dashboards to synthesize your raw data into critical business metrics, viewed in formats you choose. NetSuite includes more than 75 prepackaged KPIs, and you can create more based on custom saved searches. Role-specific dashboards offer an at-a-glance view of the most relevant KPIs, providing your leaders with easy access to the information they need.



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