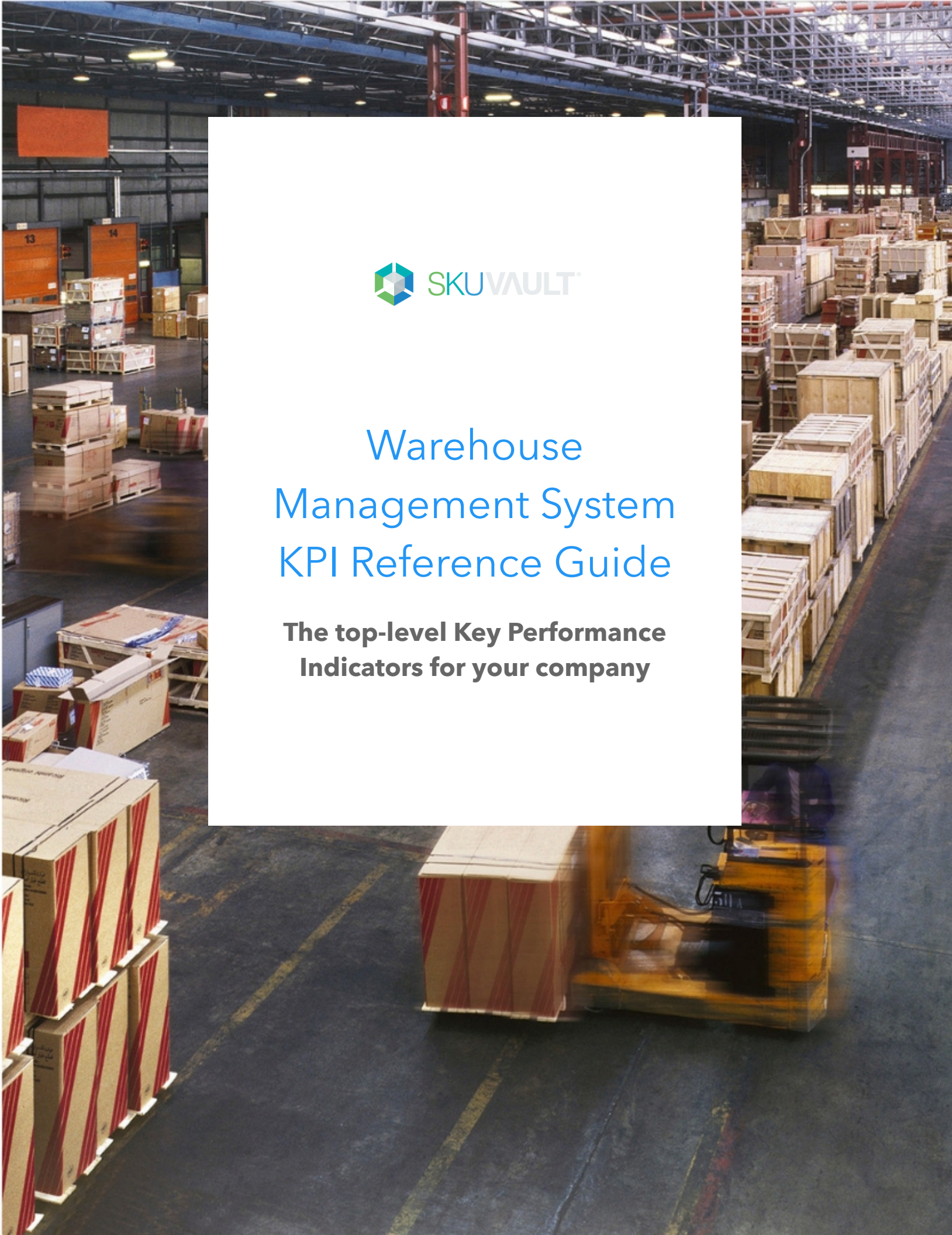

SKUVAULT

Warehouse Management System KPI Reference Guide

The top-level Key Performance Indicators for your company

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What exactly needs to be measured?

Tracking KPIs will ensure that each department or individual knows exactly what his or her main job goals are and how they will be measured. Managing to KPI's let’s everyone in your organization know how their efforts tie directly to bottom line.

*Disclaimer: Be careful, KPIs will drive behaviors and they must be designed to elicit desirable behaviors; if you are not careful, KPIs may produce undesirable behaviors. The top three to five metrics for a particular warehouse will be determined by many factors, including industry, type of goods, order frequency, average order size in units, space, number of employees, and more.

On Time Shipments

# of Orders on Time / Total # of Orders Shipped = On Time Shipments

Tracking the percentage of orders that ship on time is very important, especially if the orders are eCommerce sales. You may end up with different one time numbers for orders associated with different sales channels or shipping methods.

Ex. You shipped a total of 150 orders in a given time period, and 140 of those were on time. 100 on time orders /150 orders shipped = 93% On Time Shipment Rate.

Average Units per Transaction (items per order)

Total # of Units Sold / Total Transactions = Avg. Units per Transaction

This is the average number of items on an order, which is very important for purchasing and sales (depending on some factors) as the aim is to increase this value with upsells. This average is also vital to the warehouse in that it plays an essential role in determining pick/pack/ship workflows. It is useful to break this down by item classification if you are using zones in your warehouses.

Ex. You sold 200 total units in 100 total transactions during a given time period. 200 units /100 transactions = 2 units per transaction.

Out of Stocks (fill rate)

# of Complete Orders Filled / Total Orders Shipped = Order Fill Rate

Out of stocks occur when an order is placed and then cannot be fulfilled. This is usually due to incorrect inventory although it can also be caused by oversells if there are issues with your cart or systems. To combat this, track how many out of stock cases occur over a set period of time and then compare that to overall orders and units shipped within that same time period. Fill rate, another option for this kpi, is essentially the inverse of this, which is the fraction of the order that can be met with available inventory.

Ex. You shipped a total of 150 orders in a given time period, and 145 were shipped out complete. 145 complete orders / 150 orders shipped= 97% Order Fill Rate. Note that your Out Of Stock Rate is the inverse, 3% in this example.

Stockouts

Dollar Sales Lost (not backordered) / Total Dollar Sales = Total % of SKUs Stocked Out

A stockout is when there is no sale in the first place when there should have been a sale since the item was stocked and available. For example, if a company sells 300 units of item x per day and then for three days the SKU for that item becomes unavailable for sale, the company loses 900 sales due to a stockout. The determining factor for whether or not the stockout can be prevented is if the item is still available for purchase from the vendor(s).

Ex. You had $150,000 in total sales in a given time period, but lost $25,000 due to stockouts. $25,000 lost /$150,000 total sales= 17% of SKUs Stocked Out.

Average Pick Time (picks per hour)

Total Picks / Total Time Picking = Avg. Pick Time

Labor cost/time per item or order shipped. This is a main KPI for most warehouses and offers information about the efficiency of your pick workflow methods as well as your pickers. Picks per hour should be calculated both per picker and for the team as a whole. **To calculate average pick time per picker,** take the total picks in the time period over which you're reporting and divide that by the total time the picker was picking. This calculation produces that specific picker's average pick per hour, which can help identify pickers who might need additional training, as well as give detailed data that can help to set good benchmarks.

Ex. A warehouse employee picked a total of 150 items in a 4 hour timeframe (240 minutes).150 items picked / 240 minutes= .6 minutes average pick time.

Turn Rate

Cost of Goods Sold / Average Inventory = Inventory Turnover

This is the number of times you turn your inventory per year. If a company claims that they turn their inventory six times per year that means that the total inventory amount was sold over that twelve month period. Turn rate can be calculated overall or for a segment of your inventory, such as by classification. There is no one standard "good turn rate" for a company as this value varies by industry.

Ex. The total cost of products you sold in a given timeframe is $150,000. The average amount of inventory is 15,000 units.$150,000 cost / 15,000 units in inventory = Your inventory turns over 10 times per year.

Weeks on Hand

52 Weeks / # of Inventory Turns = # of Weeks of Inventory on Hand

This is a simple metric that takes the average sales volume and returns how many weeks on hand of stock a company has at any given time. Depending on industry, there are different benchmarks for what is considered acceptable. A company can also break this metric down further into segments or classifications to get a more detailed view.

Ex. You turned your inventory over a total of 5 times in a 52 week period. 52 weeks/ 5 Inventory turns= 10.4 weeks.

Average Order Cycle Time (time from transaction to shipping)

(Time Order Received by Customer - Time Order Placed) / Total # of Orders Shipped = Avg. Order Cycle Time

This metric provides a feel for your overall order processing speed, which is similar to first response rate for a customer service team. Average order cycle time represents the amount of time in which a warehouse crew can pick and ship an order, accurately.

Ex. A customer places an order on Monday, and it is all processed and shipped out by Wednesday. 2 days / 1 order = 2 day Average Order Cycle Time

Mis-Ship Rate

# of Orders Shipped Complete / Total # of Orders Shipped = Order Shipping Accuracy

A mis-ship is a shipment that was shipped out with incorrect items. This is a metric that is calculated after the errors have occurred.

Ex. You shipped a total of 150 orders, but only 125 of them were shipped complete.125 complete orders /150 orders shipped = 83% Order Shipping Accuracy.

Mis-Picks

# of Orders Picked Correctly / Total # of Orders Picked = Order Picking Accuracy

Mis-picks are similar to mis-ships except that for these, the error is identified before the order ships out. At shipping/quality control the order is checked and an item is identified as incorrect for the order. This error is marked in the system and the order must go back in the queue for correct picking of any missing items and for putaway of any incorrect items. The system can then give data on how many orders and units were mis-picks out of total orders in a time period.

Ex. You picked a total of 150 orders, but only 125 of them were picked correctly.
125 correctly picked orders/ 150 total orders picked = 83% Order Picking Accuracy.

Inventory Accuracy

Database Inventory Count / Physical Inventory Count = Inventory Accuracy

We recommend doing continuous cycle counts; split them up into a few locations per week or per day with a goal of doing a full cycle count in x amount of time. The amount of time, x, will increase or decrease depending on accuracy. Calculate accuracy by taking your starting inventory and comparing it to a fresh count, recording the percentage off from the actual inventory. You can also identify locations or zones that are consistently less accurate and increase the cycle count frequency in those zones. This metric is a great KPI for the warehouse team as a whole because it is directly related to how well processes are being followed in other warehouse workflows.

Ex. Your database shows an inventory count of 150 units. But during a physical check, it is discovered that you actually only have 145 units in stock.125 physical inventory / 150 database inventory = 97% Inventory Accuracy.

Units in Receiving Queue & Average Time to Receive

Also known as dock to stock time, this metric is especially important if you run off terms. If you are on net-30 terms, your goal is to turn inventory in less than thirty days (and, in general, always as fast as possible). This way you profit more with less resources spent. The premise here is to track the time it takes your receiving team to stock and prep goods for the next step in their lifecycle. In addition, tracking how many items are in queue (waiting to be processed) can help dictate how many receivers are needed at a given time as well as their progress. This KPI is simply an average days to receive per order.

Ex. When looking at three orders, you see that one took 2 days to receive, another took 4 days and another took 6 days. The average time to receive is 4 days.

Dock to Stock Time (average time to receive)

Sum of Cycle Time (hrs) for all supplier receipts / Total # of Supplier Receipts = Dock to Stock Time

This is the average time it takes for new units delivered to make their way into stocked locations. This metric along with the units in receiving queue and receiving accuracy are three major metrics to help monitor receiving operations.

Ex. You spent 15 hours fulfilling a total of 150 supplier receipts, 15 hours / 150 supplier receipts = .1 hours Dock To Stock Time.

Carrying Cost

Inventory Carrying Rate x Average Inventory Value = Carrying Cost

This metric measures how much it costs to store a unit over a period of time. Carrying cost covers, labor, insurance and storage. The formula for this metric includes a safety stock percentage. (For example, 0.9 would indicate that you want to have a 90% chance that you will never run out of that SKU. This also means that you will have much higher carrying costs compared to someone running 0.1 or 10% certainty levels that they will not run out.) The amount of the carrying cost depends on how much safety stock you want to carry. Industry, product type, and customer expectations will play a large role in your strategy here.
Reducing inefficient processes can lower your carrying costs. If you have a high turn rate this may be a less important metric for your company.

Ex. It costs you $7 per day to warehouse a product worth $50. Your carrying cost is $35

Rate of Return

Number of Units Returned / Number of Units Sold = Rate of Return

This is a popular metric, which measures the percent of orders or items that are returned. You can get even more granular and assign returns to return reasons or codes and classify them as due to product or warehouse. This is a metric that cannot be run real time and must be backdated as the returns happen.

Ex. You had 15 returns out of 100 units sold. 15 units returned /100 units sold = 15% Rate Of Return