

MEASURE AND IMPROVE WAREHOUSE EFFICIENCY

THE KEY PERFORMANCE INDICATORS TO
DRIVE YOUR BUSINESS FORWARD.

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INTRALOGISTICS

"It is crucial to identify and track Key Performance Indicators to understand trends within the facility and identify opportunities for improvement. A better understanding of historical data helps construct improved plans to achieve future growth targets and improved efficiencies."

BACKGROUND

Key Performance Indicators (KPIs) are more than just numbers on a report. Identifying KPIs and measuring progress relative to those targets is important for understanding current business performance and driving continuous improvement. Accurately identifying and tracking KPIs provides your company the ability to compare your inbound and outbound metrics and the corresponding resource efficiencies to the company's historical data. Having this data visible and at the forefront also enables your company to benchmark its strengths and weaknesses against its competitors. The tracked metrics will help determine the best processes and technology to implement to meet your business needs and increase efficiency within your facility. To get the most benefit from your metrics, it is important to track the right ones.

The following information describes some of the most frequently tracked and beneficial KPIs by operational area for managing a facility.



THE IMPORTANCE OF INBOUND METRICS

With generally less labor and less visibility to customers, inbound and receiving operations are erroneously considered less critical than outbound operations. Inbound operations are responsible for whether the subsequent operations will succeed or fail. The phrase, "Garbage in, garbage out" can describe the impact that inbound activities will have on future output and overall success. Errors that are missed or created during receiving can cause labor associated with subsequent tasks to grow exponentially.

INBOUND METRICS TO TRACK



OUTBOUND METRICS

The functional areas associated with outbound tasks in distribution warehouses and order fulfillment centers often account for the majority of direct labor and variable expenses. For that reason, controlling and monitoring in the outbound area is very important. In addition, improvements in these areas will likely provide a higher return on investment.

OUTBOUND METRICS TO TRACK

1. Outbound Processing Throughput versus Capacity

It is helpful to document daily demand by functional processing area. The best unit of measure may vary by area of operation. When this historical demand information is understood, it identifies typical peak-and low-volume trends that can be very helpful when combined with an understanding of order turnaround time, required service levels, and growth expectations.

2. Picking & Packing Cost

Another outbound metric you should consider tracking is the staffing levels by functional area and the associated picking and packing costs. These costs can include both direct and indirect labor associated with the tasks. Indirect labor could be associated with administrative tasks to keep a department running smoothly. Measuring direct and indirect labor in these functions is important and both can benefit from new tools or technology.

3. Order Accuracy

Another important metric is order accuracy. Customers want to receive the correct products and quantities on the first attempt. Errors in picking accuracy are not only costly to rectify but can result in a loss of customers. Measuring this accuracy is not only important for monitoring day-to-day operations and catching problems sooner rather than later, but it is also important when considering automation. Deploying automation to reduce human interaction can improve order accuracy whether it be through robotic picking, validation scans throughout the process, vision inspection, or weight inspection systems.

4. Order Processing Time

Order processing time is also a critical metric and one of the most important factors in attracting and retaining customers. Recent advancements in



technology have driven a cultural change, and we as consumers want our products now! It is no longer an acceptable practice to wait days on end for your order to be fulfilled. The amount of time it takes once an order is received to when it is shipped has become a critical metric, and it could also have contractual liabilities or ramifications. If too many orders are being released simultaneously and creating bottlenecks within processing areas, this could lengthen the processing time. Inventory discrepancies can also impact processing time. Deploying a Warehouse Management System (WMS) or Warehouse Execution System (WES) to ensure accurate inventory and balance the workload on the systems is crucial.

INVENTORY METRICS

A distribution facility does not exist without inventory which includes all the items or materials being held in the building. Proper inventory management facilitates improved order accuracy, more efficient operations, and better profits through lower costs and higher sales. Too much inventory can cause inefficient operations and excess warehouse costs whereas too little inventory can lead to missed sales. Inaccurate inventory can lead to order errors and poor customer satisfaction as well as higher costs. Inventory and its ebb and flow will dictate the storage media, its configuration, and its utilization.

INVENTORY METRICS TO TRACK

1. Storage Cost per Unit

Storage costs are the costs associated with the product whether the product moved or not. Storage costs can include fixed and variable costs and are divided by the number of units (average number, peak number, or rolling number of units) in a given period. This is often analyzed monthly. This metric can highlight the costs associated with poor inventory turns and the need to change buying patterns or storage configuration.

2. Days of Inventory on Hand

Days of Inventory on Hand (DOH) or Days of Supply (DOS) is the amount of inventory divided by units shipped per day. In other words, based on historical average or forecasted average of units shipped per day, how many days are there before the inventory on hand is depleted.

3. Storage Utilization

To avoid spending money on excess or additional space, operators may try to get storage utilization as high as possible.



However, at 100% utilization, there is no room for operational flexibility or to receive and move inventory as needed. The system can become inefficient or even gridlocked when inventory is at peak levels. The storage utilization needs to be monitored to ensure the maximum desired threshold is not crossed. On the other hand, if the utilization is too low, there might be an issue with storage configuration, or there could be a consolidation opportunity. Two key measures of storage utilization are cube utilization and location utilization. Cube utilization is the total volume occupied by the product divided by the total volume available for the product. Location utilization is the total locations containing the product divided by the total number of locations.

4. Inventory Accuracy

Inventory accuracy is the comparison of physical inventory to the systemic recorded inventory. This comparison includes item type and quantity. One of the most common measurement methods is to divide the number of counted items that perfectly match every aspect of the record by the total number of items counted.

OVERALL FACILITY METRICS

Besides metrics that are specific to an individual area of a facility, there are also cross-functional metrics that are crucial to track in order to highlight the facility's macro trends. This can include tracking shipment and order profiles, overall cost per order, and various utilization rates. The most common 6 cross-functional facility metrics include:

OVERALL METRICS TO TRACK

1. Labor Utilization Rate

Labor utilization rate is the measure of an employee's productivity. The labor utilization is calculated by taking an employee's output divided by the maximum potential output. The ratio is multiplied by 100. This can be tracked in real-time or at various increments of historical data. This is not tracked at the facility level but rather at the individual area level.

2. Stock Keeping Unit (SKU) Velocity

Often categorized as A, B, C, or D movers, the SKU's velocity is the quantity and frequency of movement over a given period. SKU velocity can be calculated from tracking historical trends or based on forecasted sales. It is important to evaluate the SKU velocities continuously or periodically in



a distribution facility. The information can be used to reslot or reconfigure operational processes or storage to improve operational efficiencies.

3. Units per Order

A key indicator for the success of an operation can be the order profile. When an order profile changes, depending on the flexibility of the system, a distribution facility can become much more or less productive based on the favorability of the change. One component of an order profile is units per order. There can be single-line, single-unit orders with one unit on each order, or there can be hundreds of units on each order. These metrics can be tracked as an aggregate across all orders, or they can be split out by the order's classification.

4. Lines per Order

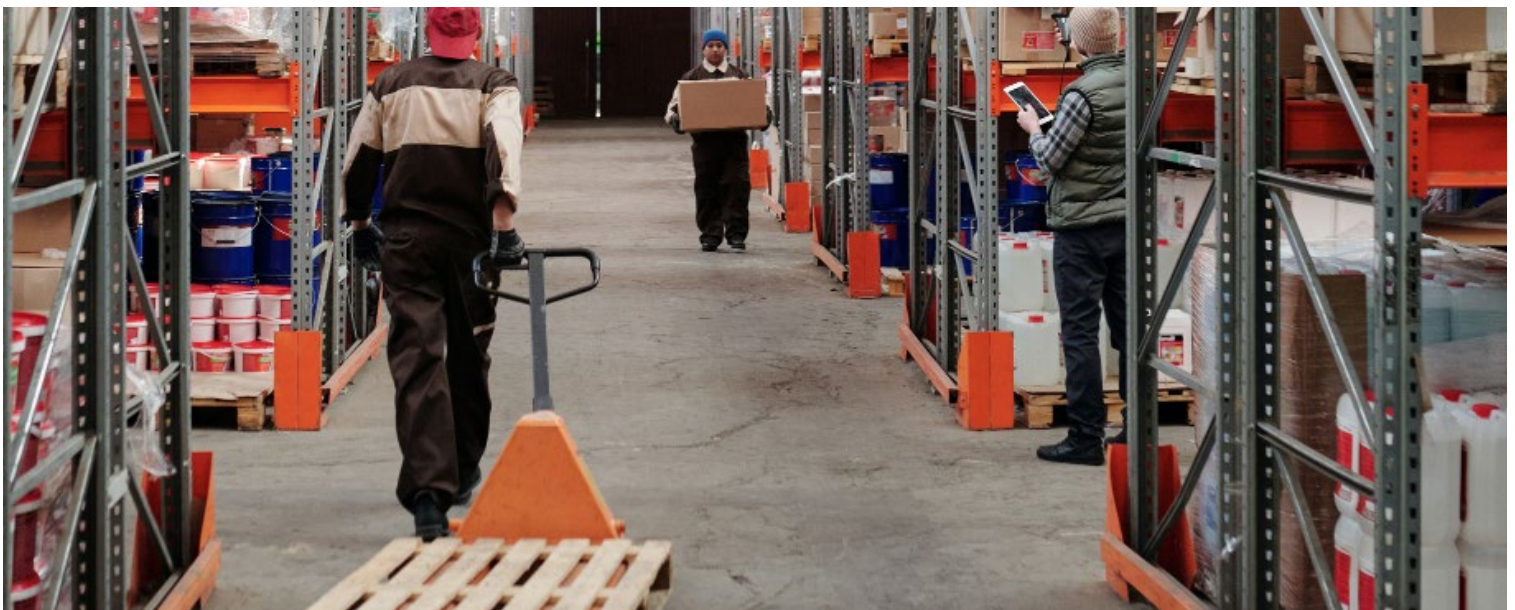
The second component of an order profile is the lines per order. Lines per order can be somewhat representative of the number of locations that must be accessed to pick the orders complete. Significant swings in this metric might suggest alternative processing methods.

5. Average Fulfillment Cost per Order

Fulfillment cost per order is a high-level metric that can ensure flags are raised when some factor is driving a less profitable operation. Although this does not identify the problem, other metrics previously described can be used to drill down to uncover the root cause. This rate is calculated by totaling all fixed and variable costs for a certain period and dividing it by the total number of orders (or another unit of measure) processed in that same period.

6. Equipment Utilization Rate

Equipment utilization rate is very similar to the labor utilization rate mentioned previously. Equipment utilization rate measures equipment productivity. The equipment utilization is calculated by taking the equipment output and dividing it by the maximum potential output. The ratio is multiplied by 100. This can be tracked in real-time or at various increments of historical data. Measuring this utilization can identify potential bottlenecks constraining overall throughput and jeopardizing process reliability, or it could alternatively identify cost savings opportunities.





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Tracking key performance metrics helps you run a leaner and more profitable business. Having a clear understanding of how well your organization is performing provides the necessary data to run your business today and equips you with the information needed to make important decisions about the future. The historic throughput, volume, and profile metrics listed are guides to narrow the scope of applicable technologies for an operation as well as determine appropriate system sizing. The productivity, efficiency, and accuracy metrics help identify areas that are strong candidates for process or technology-assisted improvement. The cost metrics can aid in accurate return on investment calculations to guide decision making on any potential changes. It is crucial to identify and track Key Performance Indicators to understand trends within the facility and identify opportunities for improvement. A better understanding of historical data helps construct improved plans to achieve future growth targets and improved efficiencies.



WHAT'S NEXT?

Are you ready to start assessing improvement opportunities or ways to increase capacity within your distribution network? If yes, then contact Hy-Tek Intralogistics today. Our specialized team will work with you to understand your business targets, develop a customized plan specific to your company, and put the appropriate systems and technologies in place to help your facility optimize its processes.

Give us a call at **1-800-891-5504** or email us today at **info@hy-tek.com**.