

Five Ways To Increase Productivity In Picking Operations

White Paper



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Organizations often overhaul picking operations, implementing new picking techniques, new processes and new order picking equipment, in an attempt to gain productivity in their operations. These endeavors are successful and lead to big jumps in productivity (doubling, tripling or even quadrupling productivity rates) but they often require an upfront capital investment and a significant disruption of current operations.

In a slow, rebounding economy companies are less likely to invest hundreds of thousands of dollars into process improvements when sales are flat. While this is understandable, companies that remain stagnant in this environment won't be positioned for growth when the economy rebounds. While companies are hesitant to make large operational changes, there are other smaller things that can be done within your current picking operations to improve productivity now and achieve some growth in an uncertain economy.

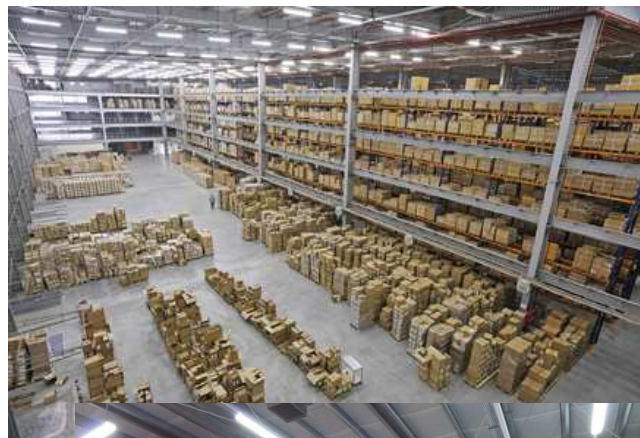
This white paper will review five ways you can achieve productivity improvements in your picking operation with minimal disruption to your operations and without a major capital investment.

Slot Your Parts

A fast moving SKU today can become a slow moving SKU tomorrow. Matching the part by velocity, size and stored quantity to the storage location can increase productivity. Often organizations fail to reorganize parts as order profiles change. Slower moving SKUs end up stored in prime picking locations while faster moving SKUs are added to inventory and stored in less accessible locations.

Warehouses can be huge in size and time spent traveling to and from a location to pick a part can really add up and dramatically effect picking productivity. Review SKU movement regularly and place the most popular (fast moving) SKUs at the front of the picking area.

Re-slotting all SKUs at one time can be an overwhelming and time consuming task. Instead review a small percentage of your SKUs frequently. Depending on your number of SKUs, targeting 8-10% for re-slotting monthly can be easier to manage. Start with the fast moving SKUs, as these are the locations the workers visit most often, they will have the biggest impact on productivity.



Utilize The Golden Zone

It's also important that once the picker arrives at the location to pick the SKU, that the SKU is accessible and requires minimal effort to be picked. Bending down or reaching overhead to retrieve an SKU can dramatically affect picking productivity.

When a worker is picking multiple SKUs to fill orders over 8 hours it's imperative to consider worker ergonomics. The majority of picks should be located in the Golden Zone. The Golden Zone is defined as the area between a worker's knees and shoulders- the ideal zone from which to pick. This minimizes the worker's reaching and bending thus improving pick times and eliminating worker fatigue.



Also take into account heavy SKUs and any SKUs requiring special handling. When SKUs require special handling, ensure that the tools required to handle the SKU are available and close by. If an ergonomic hoist is required, have it ready, available and easy to use at the location of the stored SKU.

Picking from the Golden Zone increases a worker's picking speed and improves accuracy. Golden Zone picking also reduces the risk of injury to the worker, avoiding costly worker compensation claims.



Match SKUs To The Storage Technology

Matching the SKU profile to the storage device is a critical step most companies skip over. Picking operations expand as business grows, and SKUs are haphazardly stored in the whatever storage technology is available at the time. Matching the SKU profile (size, velocity and quantity) to the storage location isn't a priority.

There are a number of storage technologies on the market today, and each offering a slightly different advantage. From manual picking (standard shelving and drawer systems and flow rack) to automated picking (vertical carousels, horizontal carousels and vertical lift modules), it's important the picking technology matches the SKU profile.

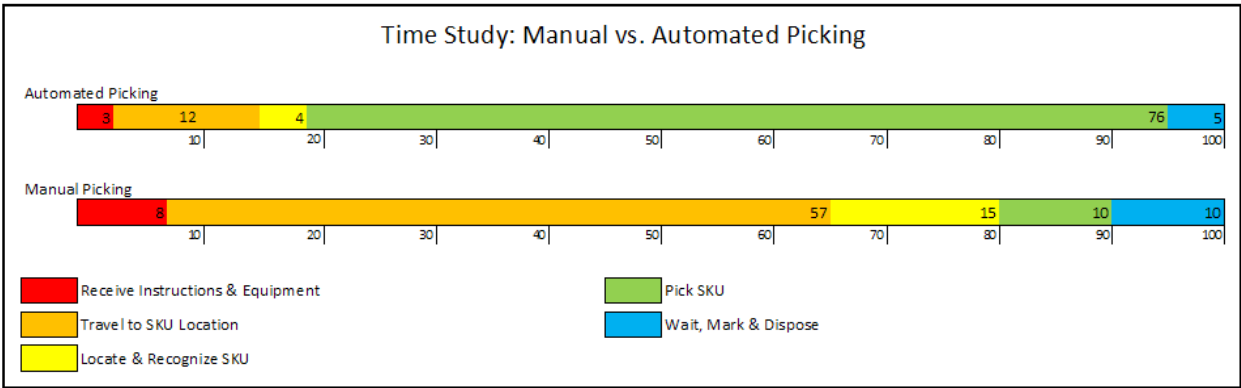
Shelving is the most cost effective storage technology, but offers low storage density, poor ergonomics and high travel times. Shelving can be a good solution for slow moving SKUs that are picked infrequently. Automated storage (Vertical Lift Modules, Vertical Carousels and Horizontal Carousels) can

be implemented at a minimal cost. Working on the goods to person principle, automated storage technologies provide high density, high throughput and Golden Zone ergonomics. If maximum throughput is needed, carton flow rack or picking directly from the pallet is the best solution. Matching the SKU profile to the storage technology allows the worker to find, access and retrieve the SKU most efficiently.

Light directed Pick-to-Light technology can be integrated with the technologies above to direct the picker to the exact location of the pick; eliminating the time spent searching for the exact SKU once at the location and increasing productivity even further.

Picking Technology	Average Lines per Hour
Shelving	30 – 75
Drawers	30 – 50
Flow Rack	75 – 150
Pick To Light Rack	95 - 200
Vertical Lift Modules	125 - 175
Vertical Carousels	150 – 225
Horizontal Carousels	225 – 750

A time study of manual vs. automated picking reveals that in a manual picking environment 57% of a workers time is spent traveling to the SKU location. Compared to an automated picking environment where only 12% of a workers time is spent traveling to the SKU location; leaving more time for picking. Further, in a manual picking environment, only 10% of the workers time is spent picking- the most productive action. While in an automated picking environment, 76% of the workers time is spent picking. In conclusion of this study; in an automated picking environment the worker spends 86% more time picking than in a manual picking environment. $(76 - 10 = 66 / 76 = 86\%$ more time picking).



Implement a Picking Strategy

Batch Picking

Picking more than one order at a time can increase productivity substantially. Switching from the “grocery cart” picking concept to a batch picking concept can be achieved in both manual and automated picking.

In manual picking workers have a one to one relationship with an order. Generally, a worker uses a paper pick ticket and travel to the location of each SKU, collecting all SKUs required for the order as they go and delivering the completed order to shipping . While this is the easiest way to manually pick orders, it is not very efficient.

Batch picking is the practice of picking multiple orders at one time. Simple batch picking can be accomplished in a manual picking environment with picking carts. In this scenario, the picker picks the SKUs required for multiple orders at one time. Instead of traveling with one order at a time, the picker travels with several orders at one time, minimizing travel time to the same location over and over throughout the day.

For example, instead of traveling to the same SKU location three times to fulfill three separate orders, the picker travels to the SKU location one time and picks enough quantity to fulfill all three orders. Depending on your average SKU size, the batch cart required to handle picking multiple orders could be large and difficult to manage. Manual batch picking works best when picking smaller SKUs.

It’s important to note that batch picking more than a few orders at one time in a manual picking operation could impact accuracy. When batch picking, it’s best to integrate software to maintain accuracy rates. Increasing productivity while decreasing accuracy won’t help get you to your goal. Inventory management software can optimize the picks, directing the worker to the location to pick and verifying the quantity to pick.

In automated batch picking, the worker remains in one location while the horizontal carousels, vertical carousels or vertical lift modules deliver the required SKUs to the worker. The worker picks enough quantity of each SKU to fill all of the orders in the batch. Batch picking reduces the number of times the worker visits the SKU location increasing productivity. While the worker is picking a SKU, the automated storage system is positioning for the next pick so the worker rarely has to wait.

Having workers pick more than one order at a time will utilize the workers time more effectively and can increase productivity.



Zone Picking

Another strategy is zone picking. Zone picking is the concept of dividing the warehouse into multiple zones and assigning workers to pick only within one zone. Using zone picking, a worker picks all of the SKUs required for the order only from the zone he/she is assigned to, allowing the worker to focus on only one part of the fulfillment process. Each zone can utilize a different technology allowing you to best match the storage technology to the SKUs stored in that zone. Using zone picking, orders are either picked and passed from zone to zone for fulfillment or consolidated at a point before shipping. It's important to note that batch picking can occur within a zone.



Pick and Pass

Passing orders from zone to zone for fulfillment is known as pick and pass. For example, an order originates in zone one and a worker adds all of the SKUs required from zone one. The order is then passed to zone two for fulfillment, and then on to zone three, and so on. When an order has passed through all zones it is sent to shipping.

For further efficiencies, order management software can be used to manage order flow. This allows orders to bypass zones where no SKUs are required. Orders can be passed from zone to zone manually (push cart) or more commonly can travel by conveyor.

Consolidation

Order consolidation can be used in place of pick and pass. When using a consolidation strategy with zone picking, each zone picks the SKUs required for the order at the same time (also known as parallel picking). When the partial order from one zone is complete it is sent to consolidation where it awaits the rest of the SKUs required from other zones. When all SKUs from all zones arrive the partial orders are matched up and consolidated into one order and sent to shipping. Consolidation is an advanced strategy that requires inventory management software.



Keep It Simple, Review & Ask Why

Organizations often over complicate the picking process with special rules and multiple steps that leave room for error. While getting the right part to the right place at the right time can be a challenge it's important to remember to keep your process as simple and streamlined, leaving less room for mistakes.

Review your picking and replenishment processes and ask yourself why you do things the way you do. You may find there are steps in processes that were implemented some time ago and no longer have merit.

We're creatures of habit and do things because 'that's the way we've always done it'. Is your process the same today as it was a year ago?... Does it still make sense? Subjecting your picking and replenishment process to continual review allows you to make smaller adjustments occasionally instead of a large picking overhaul that is disruptive to your operation.

Smaller Productivity Gains Do Add Up

As they say "Rome wasn't built in a day". A fully automated facility picking 800 lines an hour is a grand vision- but realistically how do you get there from the manual facility picking 60 lines an hour you have now? It can be an overwhelming challenge, but increasing productivity little by little using the five ways discussed above can have a significant impact on your operations.

For Example:

Let's take a company that is currently picking 60 lines per hour with one 8 hour shift for a total of 480 lines per day. Let's assume a standard order has 4 lines; they are picking 120 orders a day.

With a 15% increase in picking productivity, the company would improve to picking 69 lines per hour. With one 8 hour shift the total lines per day would be at 552. Assuming the same 4 lines per order, order fulfillment per day has jumped to 140.

Multiplying that out by 5 days per week and then to 52 weeks per year makes a worthwhile case for productivity increases.

	Current	15% Increase
Lines per Hour	60	69
Lines per Day	480	552
Average Lines per Order	4	4
Orders per Day	120	138
Orders per Week	600	690
Orders per Year	31,200	35,880
Average Profit per Order	\$8	\$8
Average Profit per Year	\$249,600	\$287,040



Summary

This paper has discussed the easy ways to maximize picking productivity- but don't worry there is always more productivity to be gained! For further ways to maximize productivity, talk to the experts at Kardex Remstar. With years of experience, we can provide a solution to improve your productivity.

About Kardex Remstar

Kardex Remstar, LLC, a company of the Kardex Group is a leading provider of automated storage and retrieval systems for manufacturing, distribution, warehousing, offices and institutions. For information on automated storage and retrieval systems, call 800-639-5805 or visit www.KardexRemstar.com.