

How-to Guide

Order Picking Strategies





Create your perfect picking strategy

When it comes to a picking strategy, unfortunately, there isn't a one size fits all. Most often, one picking strategy in combination with one or more of the additional picking methods is utilized to reach the goals of an operation.

To determine the right picking strategy for you, there are many factors to be considered including: order profile, percentage of single line item orders, material flow in the facility, how and when orders are released to the system, the ability to flex labor during slow and busy times, physical layout of the facility including picking, consolidation, packing and shipping areas.

As a result of the e-commerce boom, there has been a shift from picking full cases and pallets to picking "eaches"...as fast and as accurate as possible. This guide will review the options for piece picking or picking "eaches" for order fulfillment. These strategies will translate to case picking or pallet picking but will require modifications for larger sized handling.

In this guide you will learn more about 3 important picking strategies:



Pick and Pass



Parallel Picking



Wave Picking

Storage technologies

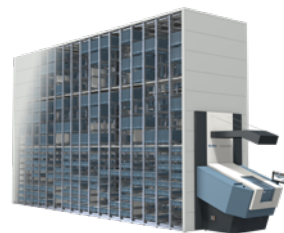
To start, review your facility layout. It's important to organize your facility into zones to support these picking strategies. Zones are most commonly created based on stock keeping unit (SKU) type or SKU velocity to create pallet, case and forward pick zones. Zones may be determined by physical storage or handling characteristics, fast/medium/slow moving lines, security or hazardous considerations and different temperature or climate-controlled requirements.

Often each zone has a different type of storage technology to most efficiently handle the SKUs in that zone – from flow rack, vertical lift modules (VLMs), vertical buffer modules (VBM), vertical carousel modules (VCMs), horizontal carousel modules (HCMs), crane based mini-loads, bin shuttle systems, robotic cube storage, mobile robots to standard rack and shelving. This is the foundation for your picking strategy performance. Then it's time to determine what picking strategy will get orders out the door as quickly as possible.

 For more on these technologies read our Buyer's Guide **ASRS Technologies**



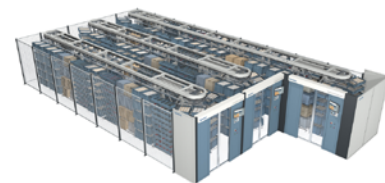
Vertical Lift Module (VLM)



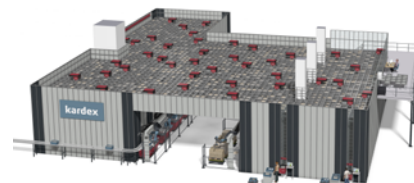
Vertical Buffer Module (VBM)



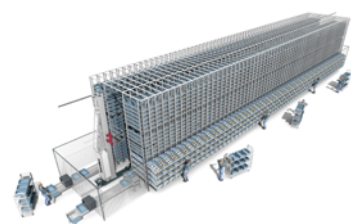
Vertical Carousel Module (VCM)



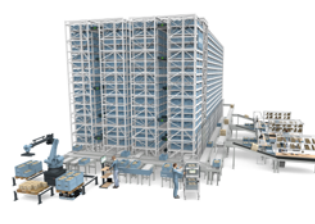
Horizontal Carousel Module (HCM)



Robotic Cube Storage



Crane-Based Mini-Load ASRS



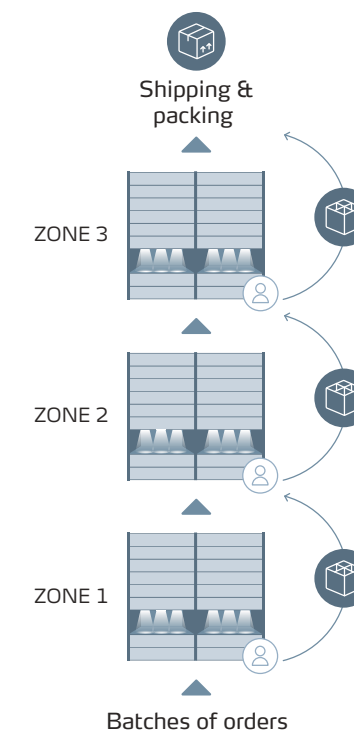
Bin Shuttle System



Mobile Robots (AGVs/AMRs)

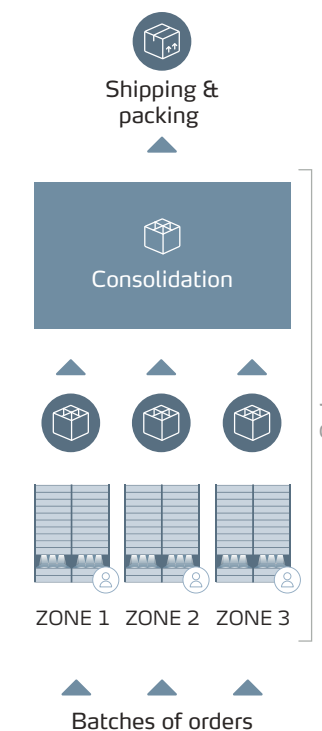
Picking strategies overview

Pick and pass



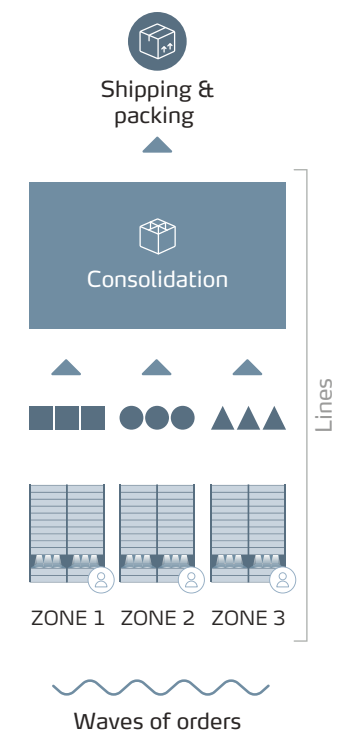
Items for an order are picked from one zone into a tote. The tote is sent to the next zone for picking by either conveyor or manual delivery until it has been to all zones and the order picked is completed and ready to be sent to packing and shipping.

Parallel picking



Items for an order are picked from all zones in parallel. Partial orders are sent to a consolidation area where it awaits the arrival of the rest of the parts needed for that order.

Wave picking



Order lines are picked from individual zones and sent to a consolidation area. These order lines are then combined into discrete orders and sent to packing and shipping.

Pick and pass

Using a pick and pass strategy, items for an order are picked in each zone in the warehouse until the order is complete and ready to be sent to packing and shipping. Each zone can incorporate different storage technology but requires inventory management software to manage the order fulfillment process.

As orders come in, the items from zone one are picked, then travel in a tote or shipping container via conveyor or by manual delivery to zone two. The order continues traveling from zone to zone collecting the required parts from each zone until the order is complete. Picking directly into the shipping container instead of a tote eliminates repacking the order for shipping.

With intelligent routing, orders can bypass zones where no parts are required. In a warehouse with five zones, filling an order can take longer if the order must originate in zone one and travel through all five zones before reaching shipping. Intelligent routing allows to fill orders faster by bypassing these unnecessary zones.

The key benefit to a pick and pass strategy is it eliminates the need for order consolidation. When they arrive in the packing area, they are complete and ready to be shipped.



Ideal for batching larger line orders and a similar product mix (size and weight)



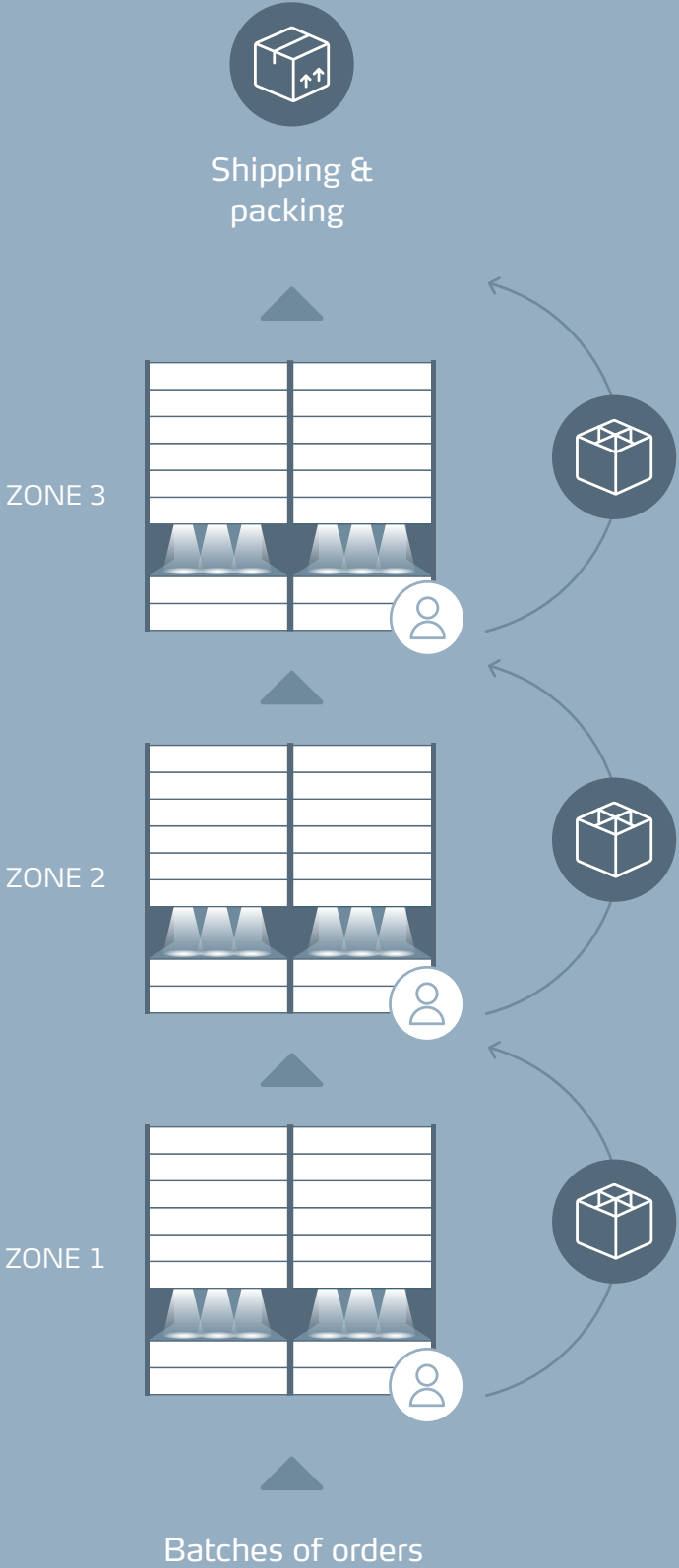
Challenges: cost of zone to zone transportations (typically conveyor)



Budget: \$\$



Least amount of labor



Parallel picking

In a parallel picking strategy, each worker is still assigned a zone; but all zones are picking the same orders in parallel. Instead of the worker passing the partial order to the next zone, the partial order is sent to a consolidation area where it awaits the arrival of the rest of the parts needed for that order.

Once all parts required from each zone arrive at consolidation, the parts are matched up to create a complete order. A consolidation zone is required in a parallel picking strategy to match up all the orders from each zone for shipment.

The key benefits of parallel picking are pickers can work independently in each zone, parts can be handled differently in each zone depending on size and product velocity and orders combined in consolidation can be checked and verified increasing order accuracy.



Ideal for batching larger line orders and a variable product mix



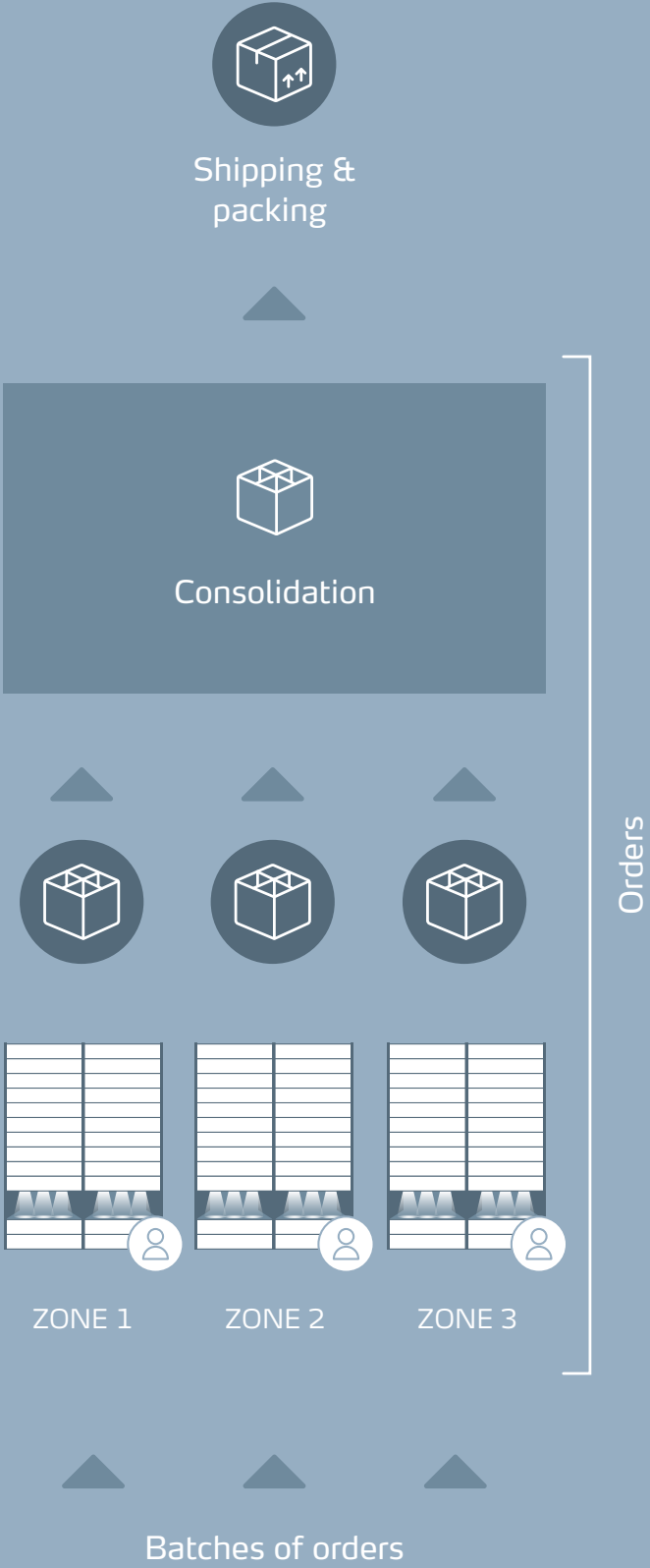
Challenges: needs a consolidation area and increased touches to consolidate orders



Budget: \$



Most amount of labor



Wave picking

Instead of picking discrete orders, in a wave picking environment operators are picking order lines. Lines are then combined from the various warehouse zones into discrete orders in the consolidation area.

In this scenario, operators are often picking directly to a conveyor which transports the items to the consolidation area. Consolidation can be done manually or can be automated using technologies such as horizontal carousel modules or high-speed sorters.

The main benefit is the fast picking process. Instead of picking batches of orders, your team is picking waves of line items. The pickers don't care what order the SKU goes into, they know they need to pick a quantity of 50 to fulfill the wave of 100 orders they are working on. Once they pick those 50 items, they don't have to visit the pick location again to fulfill the wave of orders.

It's common to see a wave picking strategy in operations picking a lot of single line orders, for example in e-commerce. This takes the sortation out of the process. Therefore, once the items arrive at packing and shipping, they get placed into a shipping container and sent out the door.

Since the workers are only concerned with picking lines, flexing labor to meet faster demand is easy.



Ideal for lower line counts per order providing highest picking speed



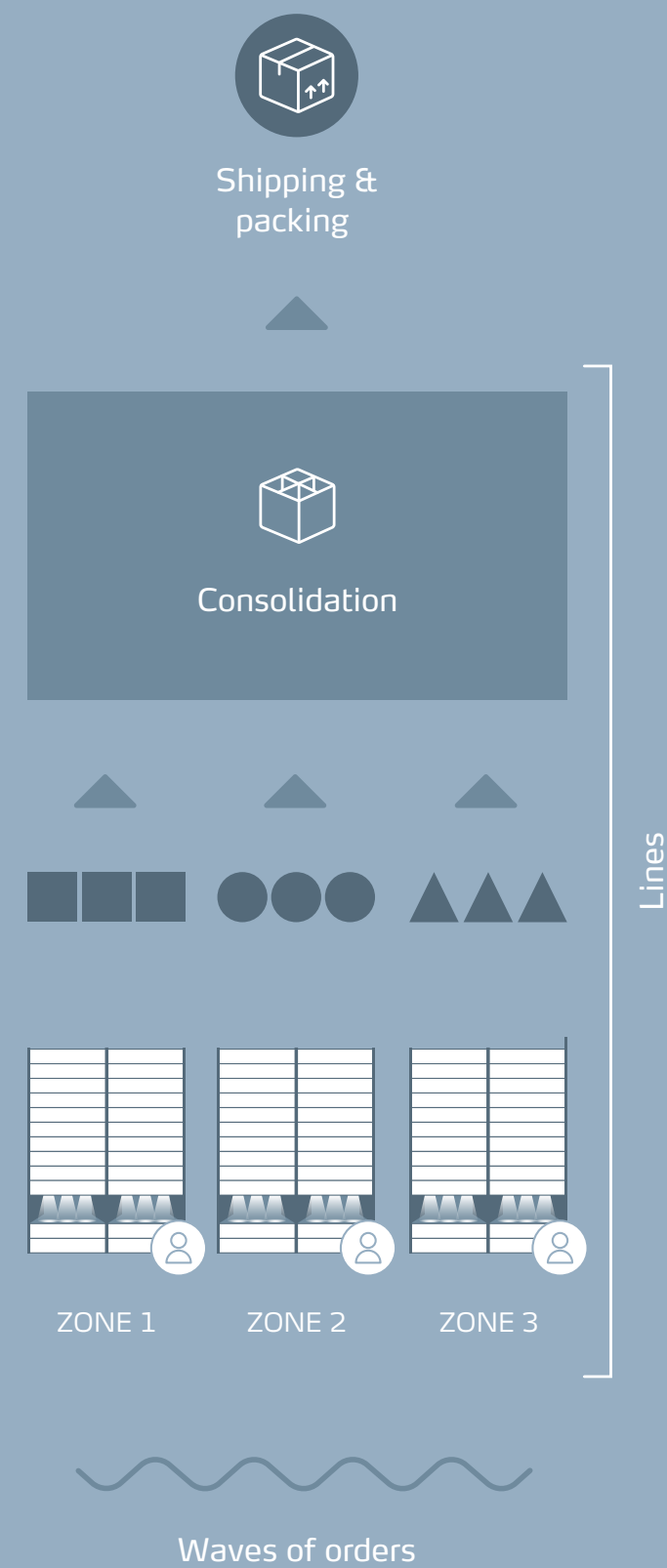
Challenges: needs a consolidation area and increased touches to consolidate orders



Budget: \$\$\$



Flex labor

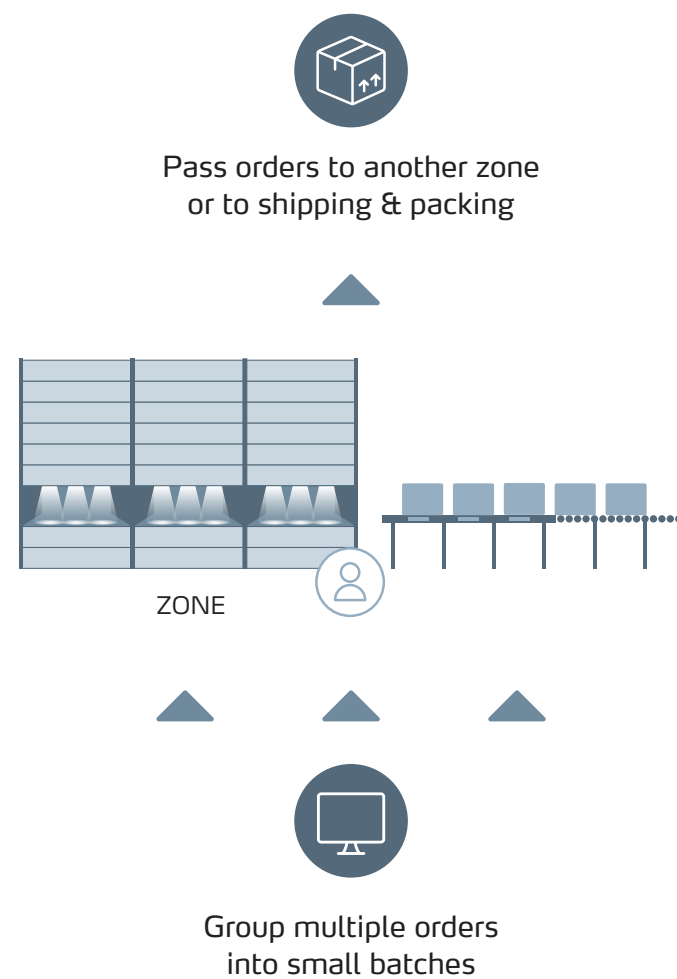


Improve order picking performance

To further improve your overall picking performance, consider the following picking methods as enhancements to the picking strategy you've chosen.

Batch picking

This is where orders are grouped together into batches to increase picking productivity. Batch picking requires a storage method, a batch station and inventory management software to manage the batch picking process. For more information on batch picking, check out this [blog post](#).



Cross picking

Cross picking combines two batch picking work zones for increased productivity. The concept is simple: two automated pick zones – comprised of horizontal or vertical carousel modules or vertical lift modules – are positioned face-to-face. In the middle of the two pick zones is a batch station consisting of a side-by-side roller conveyor with a series of alternately angled flow racks (also called slides) on top. Atop the conveyor and beneath the slides sit two rows of order totes, back-to-back – one for each pick zone. The entire system is light-directed. For more information on cross picking, here's a [blog post](#).





Additional tools

There are additional tools to further improve inventory accuracy within these strategies. Pick-to-light technology comes in handy when you want to increase accuracy. From light bars using LED lights to display part name, number and quantity to pick, to light pointers directly pinpointing the item to pick within an ASRS, pick-to-light technology can increase accuracy up to 99.9%. Also, using a bar code scanner to confirm a pick before placing it into a tote can ensure the worker has picked the correct item before it leaves the facility.

To determine the best strategy, consider your order volume and order size. This is a solid place to start. Then review your facility layout to ensure you've designated individual zones whether by storage type, product type or SKU velocity. Depending on the size of your business, the picking strategy can be easy to pinpoint. You will get the most bang for your buck if you enhance your picking strategy with one of the additional methods outlined. It's best to analyze your overall operations before determining the right fit.

 [Learn more about order fulfillment](#)