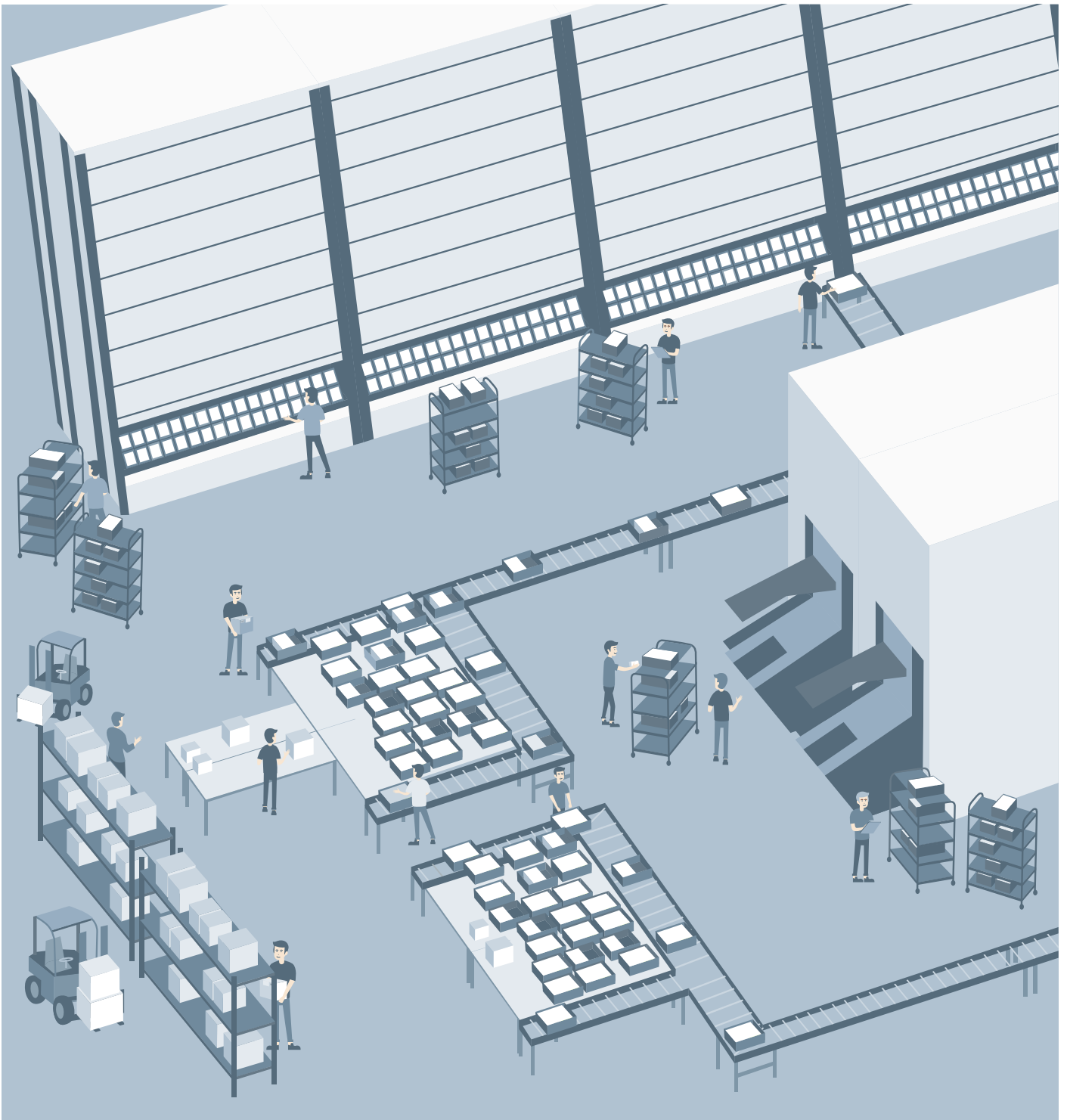
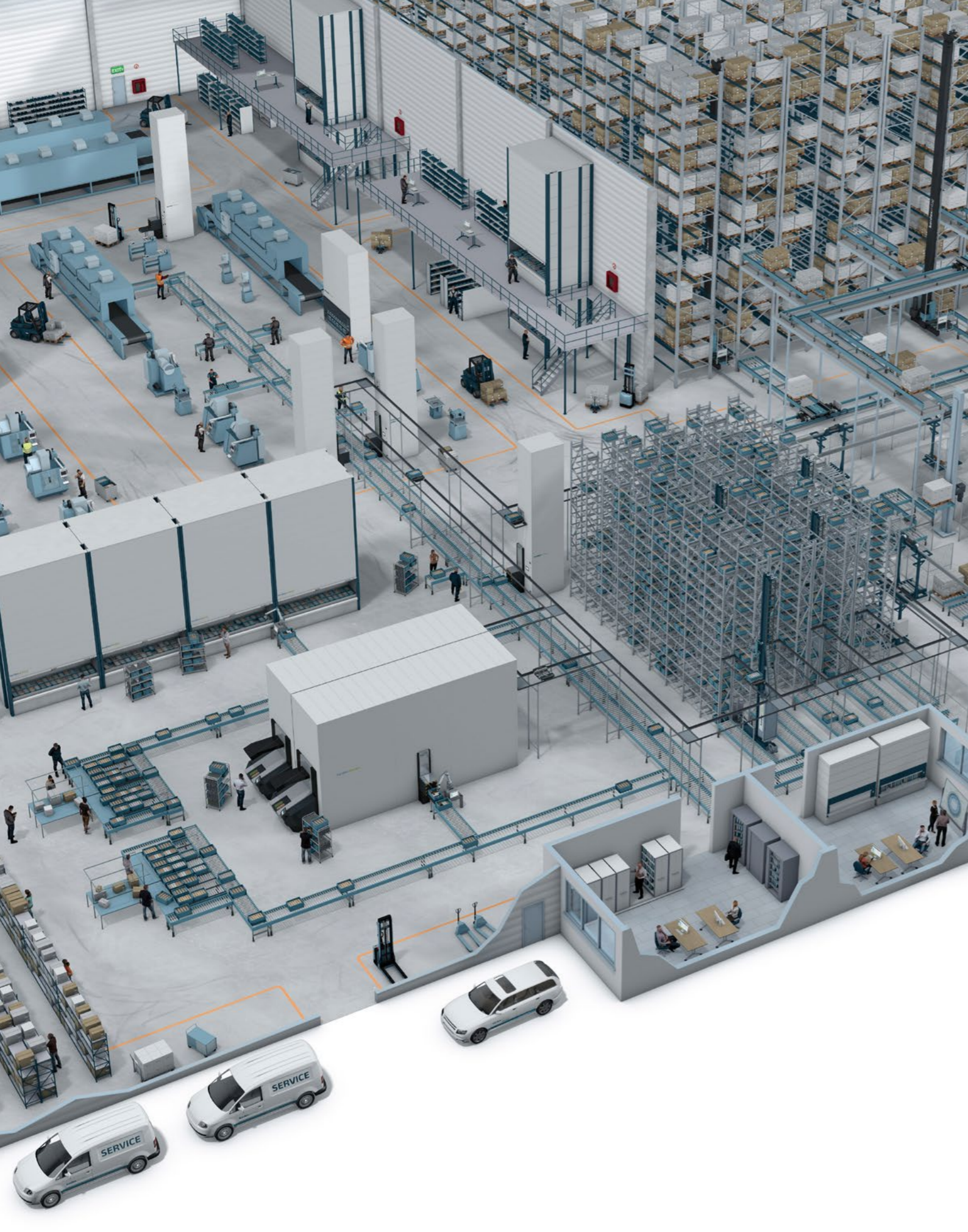


How-to Guide

# 55 Warehouse Best Practices





# Introduction

Warehouse management is often a balancing act – ensuring there is the correct amount of inventory, keeping it secure from theft, but easy to access – all within a compact footprint. Having consulted the industry's brightest minds, we're proud to offer these warehouse best practices guaranteed to improve warehouse organization, space utilization, productivity and inventory control to improve your warehouse operation efficiency.



Improve warehouse organization



Maximize space utilization



Increase productivity

# Warehouse productivity

## #1 Review SKU velocity regularly

Some SKUs move faster than others. Consistently review SKU velocities and relocated SKUs that have moved from fast to slow, or vice versa. Ensure fast moving, popular SKUs are kept in an accessible and ergonomic location (end of aisle at waist height), Consider storing SKUs frequently picked together as a kit.

## #2 Store products in bins and totes

Products left on open shelving are exposed to contaminants such as dirt, dust and exhaust fumes. Using bins, dividers and totes not only keeps products clean, organized and in usable condition, but also maximizes your storage capacity. You might also consider storing inventory in an enclosed, automated storage and retrieval system (ASRS).

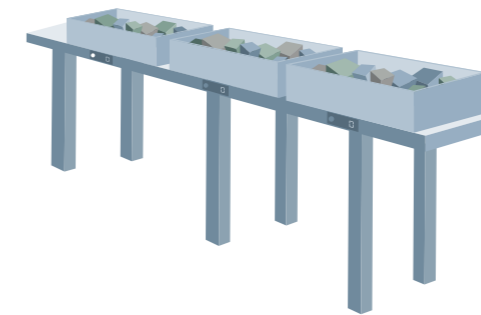


## #3 Consider a pick and pass strategy

Order totes travel from zone to zone for fulfillment. Pickers work to fill SKUs only in their zone, passing the order tote to the next zone when completed. After the final zone, it reaches shipping to be sent out for delivery. To increase productivity, pick the orders into a shipping container, so they can be labeled and put directly onto a truck.

## #4 Implement batch picking for faster order fulfillment

Batch picking allows one picker to fulfill multiple orders, or a batch of orders, simultaneously, visiting each SKU location one time. This picking strategy reduces travel time to the same pick location multiple times a day, which in turn increases picking productivity.

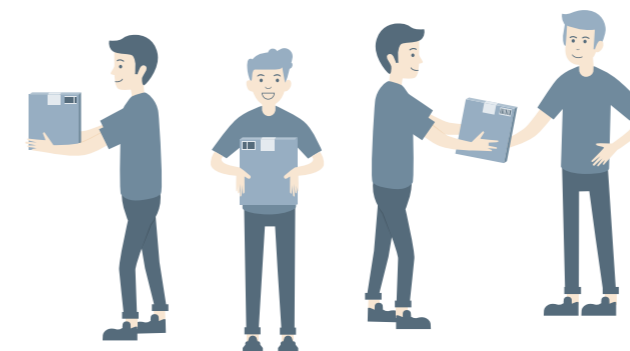


## #5 Speed order fulfillment with parallel picking

Pickers are assigned to a specific zone. Each zone picks the SKUs required from their zone simultaneously (in parallel). Once the SKUs from the zone are picked, they are sent to a consolidation area where SKUs from each zone are married up to complete the order. This strategy allows for more orders to be picked at one time, speeding up order fulfillment.

## #6 Calculate the cost of labor

Calculate the cost of labor to ensure a true cost balance in your operations. Are you constantly putting more bodies in your picking system? Spending too much money on worker comp claims? An investment in automated storage can reduce the amount of people you need in your picking operation, allowing you to reassign them elsewhere.

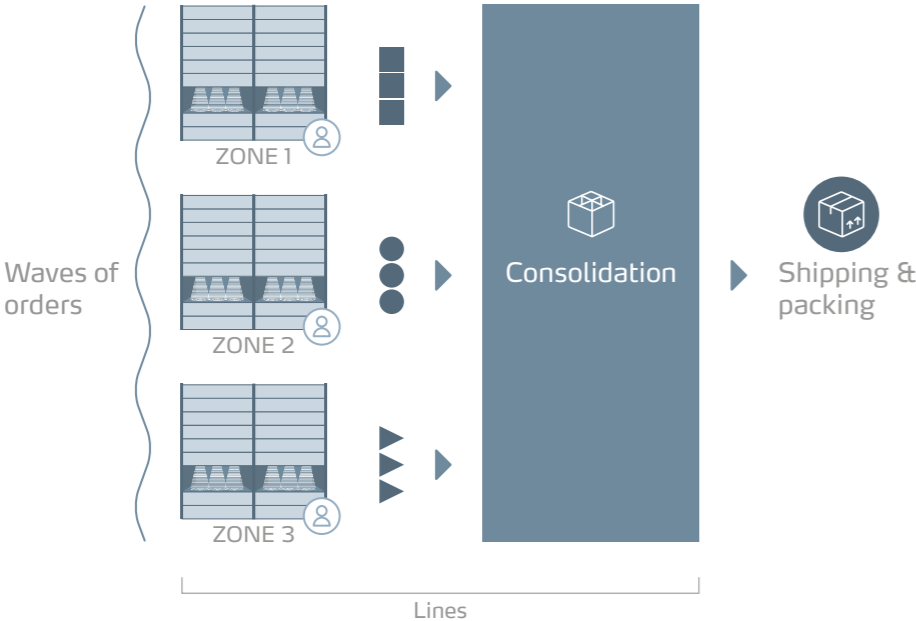


# #7 Receive product directly into open orders

Instead of receiving an order and restocking it to a storage location, receive the product against an open order waiting for the product to be received. This means, the product is never really received into the warehouse inventory just to be picked. It is received directly into an order and goes right back out the door.

# #8 Prioritize orders with wave picking

Consider using wave picking to prioritize which orders are picked first and keep operations flowing smoothly. Releasing orders in waves helps manage the workload on each function (picking, order consolidation, replenishment, packing, shipping) to not overload one creating a bottleneck.



# #9 Sequence picking to increase productivity

Create a clear path to productivity with sequenced picks that reduce travel time. Sequence picking doesn't require a picker to crisscross a picking zone or visit a storage location more than once to fill an order. Reducing this repetitive work increases productivity and eliminates unnecessary walking.

# #10 Replenish regularly to reduce short picks

Prioritize replenishment to reduce short picks and to reduce overflow in the receiving area. Instead of leaving new product at the receiving door, find times for your operation to fit replenishment in throughout the day. This will eliminate sending out orders which are short a part or two, when in fact you had those parts in your facility!



# #11 Design your facility with flexibility

Flexibility means being prepared for change. Design your operations to be managed by few employees and easily increase to many employees at peak times. This will help you plan ahead for anticipated seasonal demand when you know you need it, not when it's too late to find the labor.

# Inventory management

## #12 Protect products from theft

Deploy inventory control to prevent theft and misplaced SKUs resulting in part shortages. Using inventory management software to monitor transactions, posting cameras in open rack and shelving areas and simple locks on cabinets and drawers can save you. For costly value SKUs, consider using RFID to track down their location and find the culprit.



## #13 Match SKUs to proper storage method

Group inventory (by SKU velocity or size) and match SKUs to proper storage methods. Perhaps you have some bulky, fast moving goods, those might belong on shelving in a front pick zone. Whereas your small sized, medium movers might belong in ASRS. Matching your SKUs to the proper storage method is only going to improve warehouse efficiencies.

## #14 Prevent part shortages with minimum reorder quantities

For companies using the just-in-time (JIT) method, the last thing you need is to discover you are out of the part you need, right now! If you set minimum reorder quantities, with automatic reporting to purchasing, you can track your inventory levels regularly and automatically receive the new parts you need, when you need them.



## #15 Implement an inventory handling process

Implement an inventory handling process which best fits your business practices. Common practice is FIFO, or "first in, first out". Most often, FIFO is beneficial for companies looking to rotate their inventory, so the goods stored don't expire or reach end of life before they are used. However, LIFO, "last in, first out", works well for some too.

## #16 Use weigh scale counting

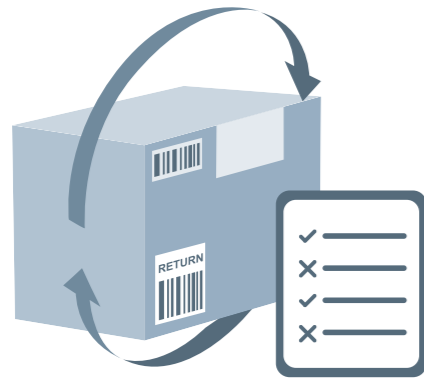
Who wants to count all of those small nuts and bolts anyways? Weigh scale counting is a simple process to implement and will increase productivity and reduce counting errors.

## #17 Consider cycle counting regularly

Keep track of inventory counts on a regular basis to ensure accurate levels and avoid a timely and costly year end physical inventory. Whether you cycle count monthly or quarterly, if you are keeping track of your inventory throughout the year, it will save everyone the hassle.

## #18 Have a documented returns handling process

There will, of course, be returns. Have a clear and documented returns handling procedure to avoid bottlenecks at receiving and restocking as well as the clutter which can pile up from an overflow of returns.



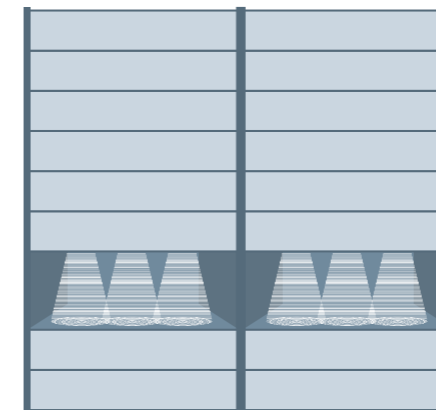
## #19 Plan your facility for scalability

Plan for flexibility and scalability. Investing in racks of shelving might make sense...today. But 5 years from now, you might find your product line changing or you downsize due to a new lean process. Have long term plans and goals so you can accommodate future growth easily, without a major headache or last-minute investment.

# Warehouse organization

## #20 Utilize vertical height to recover wasted space

Look up – you see the unused ceiling height? That's wasted money. Consolidate your overall footprint and maximize your square footage by implementing automated storage and retrieval systems. Vertical Lift Modules (VLMs) and Vertical Carousels Modules (VCMs) utilize the floor to ceiling height recovering up to 85% of otherwise wasted floor space.

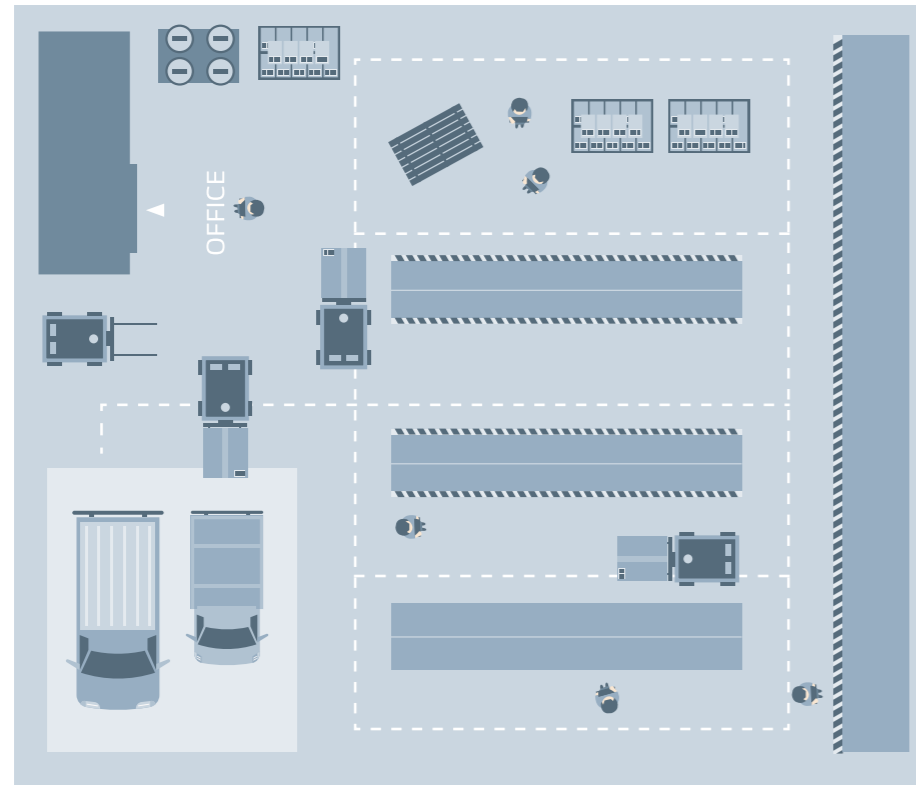


## #21 Maximize storage by reorganizing

Rearrange your shelving to reduce the amount of space between each shelf and store similar height products on the same shelf, creating more storage space. For even greater cube density, consider a VLM for maximum storage density that automatically adjusts to your changing product mix.

## #22 Review your facility flow often

Review the facility flow to make sure it flows in one direction from receiving, to stocking, to picking and shipping – you don't want people wasting time zig-zagging from area to area. Once you find the flow which makes sense for your facility, you'll be running in tip top shape.



## #23 Lean your inventory

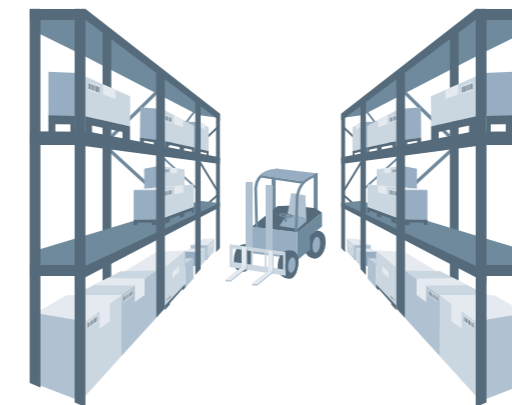
Lean your inventory with JIT practices. Only keep what is essential on site to reduce overstocking inventory. This will keep your warehouse operating at high efficiency and deliver the service your customers expect.

## #24 Keep aisles clear

Clear aisles of all clutter allowing easy access to stored SKUs and preventing injury. Ensure product is organized and quickly accessible. Don't let employees waste time searching for the one ladder in the facility – the ROI is in the increased productivity.

## #25 Optimize aisle space for forklifts

Optimize your facility with enough aisle space for forklifts to travel easily. However, don't give them too much room or you're wasting valuable space. Find the "just right" spacing to be productive but not wasteful.



## #26 Calculate the cost of space

Are you making the best use of every square foot you're paying for? Consider the benefits of implementing high density, dynamic storage and retrieval technologies to consolidate your storage areas and recover wasted space, expanding your footprint without a brick and mortar expansion.

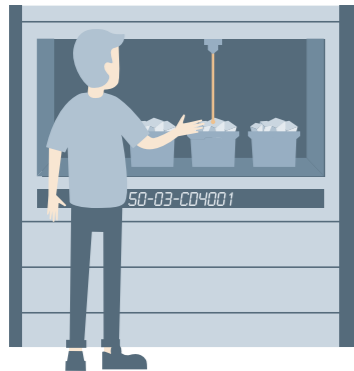
## #27 Keep workspace clean

Keep all workspaces clean and free of clutter to prevent damage of inventory and potential loss of product. This will make your customers, and co-workers happy.

# Picking accuracy

## #28 Implement pick-to-light technology for increased accuracy

Pick-to-light technologies direct pickers to the exact location of the SKU for increased accuracy. Light-directed technologies take the guessing out of picks or puts. Lights can pinpoint a location to pick from or tell the exact SKU number and quantity to pick, eliminating errors and increasing accuracy to 99.9%.



## #29 Consider color picking for increased efficiency

For a productivity boost in existing zones or pods of automated storage and retrieval units, implement color picking to allow multiple pickers to pick orders in the same zone simultaneously. It's pretty straightforward – pickers follow their assigned color lights directing them from machine to machine, batch picking orders as they go.

## #30 Reduce picking errors with automation

Mispicks cost you time and money and can damage your company reputation. Consider implementing automated storage and retrieval systems integrated with light-directed picking features which can eliminate human error.

# Warehouse safety

## #31 Integrate ergonomic hoists for heavy lifting

Make it easier for your employees to lift heavier product by integrating ergonomic hoists and lifts. This will improve worker ergonomics and reduce worker compensation claims.

## #32 Use signage to stay organized

The proper signage and labels can keep your warehouse moving forward. To direct people and stay organized, make sure your signage is clear and easy to understand. In addition, consider posting floor maps to provide additional information for visitors. This can help you avoid accidents and major cleanups.



## #33 Store frequently picked SKUs together

Store SKUs frequently picked together in the same picking location to reduce travel and search time for the picker. This eliminates visiting the same pick face multiple times a day, increasing working productivity.



## #34 Employees are your most important asset

Employees are your most important asset so give them a great work environment that will aid in retention. Touch base with them frequently to make sure they understand their roles and are comfortable with them. Meanwhile, job shadowing can help you determine if someone would be better suited in a different position.



## #35 Provide training certifications

Provide proper certifications for all necessary staff to ensure everything is being operated by trained, skilled and certified professionals to reduce the risk of injury, workers compensation claims and safety violations.

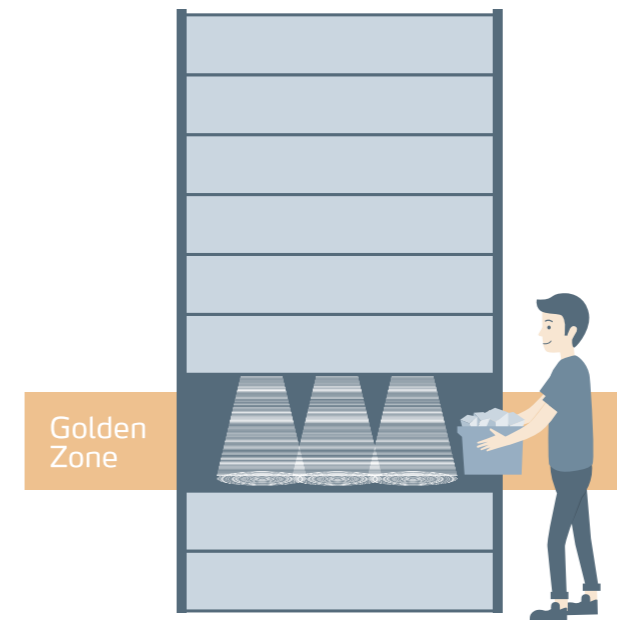


## #36 Improve processes to increase productivity

Take a look at your processes to determine where you can improve. Minimize product touches, reduced wasted steps and re-allocate the time spent doing these activities elsewhere for a more productive outcome.

## #37 Implement ergonomic pick locations

Reduce bending and reaching by organizing products in the golden zone, the area between the waist and shoulders. This improves worker ergonomics, increases picking productivity and reduces employee backaches.



## #38 Reduce wasted walk and search time

Fit your employees with pedometers, or a much cooler techy gadget, to document their steps and walking time – then finds ways to reduce that wasted time.

# Software and data

## #39 Utilize data to make decisions

WMS, WCS, ERP – when you link these systems together, real data starts to emerge. Gain real time insight into your entire operation by connecting data across multiple platforms so you can start making data driven operational decisions.

## #40 Go paperless

No one wants to manage paper pick lists anymore – it's tired, old fashioned and error prone. Reduce or eliminate paper whenever possible, using technology for a mobile and environmentally friendly worker experience.



## #41 Utilize a label printer to track inventory

Integrating a label printer to bag and tag parts can increase stock and order accuracy. Parts can be tagged with part number, lot number, serial number, batch number and more. Consider bagging and tagging your parts to track the inventory throughout its lifecycle, and make customer returns easier.

## #42 Easily identify items with a parts picture

Utilize a parts picture database to increase pick accuracy. It's easier to identify items by photo rather than by a very long part number or difficult part name. Instead, take photos of your inventory to pick by photo instead of by part number. This will increase picking accuracy, reduce mispicks and make everyone's lives easier.

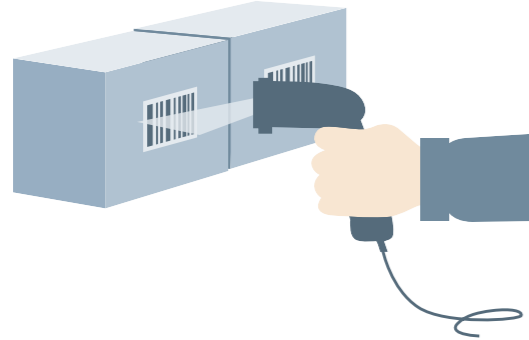


## #43 Use inventory management software for traceability

Using inventory management software, it's possible to monitor ASRS operators as they pick parts. This traceability is important for industries who use tools in CNC machines for example. They are able to determine when a tool was picked from a unit and what person took it in case they need to track down this particular tool.

## #44 Implement barcode scanning for increased accuracy

Using a barcode scanner for quick and accurate picking/putting eliminates the guess work. Confirming an item during the picking process, by simply scanning it, ensures order accuracy from the beginning.



## #45 Maximize cube density with automation

Maximize cube density automatically using intelligent software. As your business grows, products evolve and inventory expands. With changing inventory profiles, it's critical to manage cube density within every storage device. Shuffle the storage locations to get the most out of your storage space (use the automatic "tray shuffle" in your VLM).

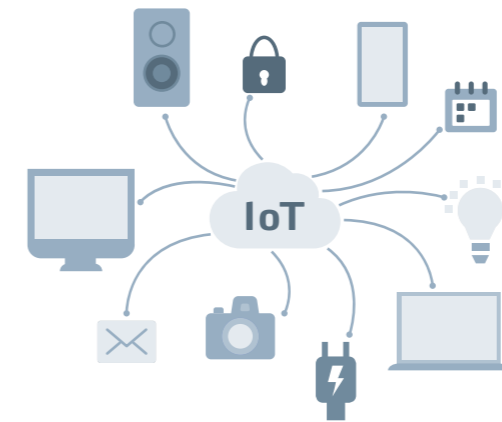


## #46 Use statistics to increase productivity

Inventory management software can monitor and record the number of picks per operator, the time per pick and accuracy rates. Analyzing the productivity of workers using ASRS can confirm you're highly productive or it can show where you could make some productivity gains and improvements.

## #47 Connect warehouses with IoT

Utilizing the internet of things (IoT), you can connect your warehouses to control all your inventory from one location. The ability to monitor your inventory and storage technologies remotely can result in reduced downtimes and higher efficiencies.



## #48 Keep track of high dollar inventory

Track high dollar or sensitive items by serial, lot and batch number throughout the receiving, stocking and picking process. This is especially important for the medical device manufacturing industry for example. When picking a knee replacement, it is important to know which serial, lot and batch number is in each order in case of a recall.

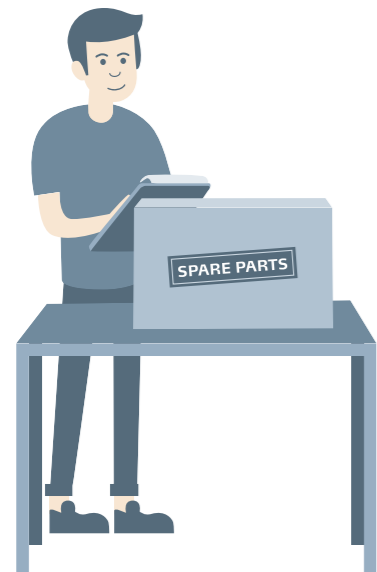
# Warehouse maintenance

## #49 Plan for preventive maintenance

It's in your best interest to adhere to the manufacturers maintenance schedules they recommend. Make the maintenance of your equipment a priority. It keeps your facility in working order, reducing or eliminating unplanned downtime. Often, the extended warranty is worth it.

## #50 Keep spare parts on hand to reduce downtime

Technology and equipment failures are everyone's worst nightmare. Always keep spare parts on hand in case of those failures. This should allow for a quick repair and get you back up and running in no time, reducing unplanned, extended periods of downtime.



## #51 Evaluate technology for maximum efficiency

Task someone to keep abreast of the changes in the technologies you use in your operations. Evaluating the benefit of technology add ons throughout the lifecycle of your equipment can further improve your efficiencies.

## #52 Perform process audits often

Perform process audits of your operations annually to ensure you are getting the maximum benefit of your technology. Are there processes you can tweak for efficiency? Are there modules of software you have but don't use? Material handling technology should be driving your operations forward. Be sure you get the full value out of your investments!



# Shipping and receiving

## #53 Optimize your consolidation zone

If you implement a parallel zone picking strategy, be sure to optimize the consolidation area where all of the products in an order come together in their shipping container. Consider the consolidation area its own zone. Leave room for order totes to be received at consolidation and for empties to be returned for future orders.

## #54 Consider picking straight to a picking container

Picking straight to a shipping container saves time and eliminates unnecessary steps. Picking to an order tote, which moves with the order to shipping, only to take all of the items out to put them in a shipping container wastes time. Instead, pick directly into a shipper container, promoting lean processes and reducing the steps in your picking strategy.



## #55 Review receiving process

Review your receiving process to ensure items are properly inspected, counted and verified before entering them into the inventory management system. Don't allow unacceptable and damaged items into inventory.