6 Critical Tips

When Evaluating Automated Storage

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HAI ROBOTICS

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Today, there is an area in most warehousing, manufacturing, and distribution facilities that is unnecessarily costing companies excessive amounts of money. Yet, this space is typically overlooked until the wasted costs and inefficiency become desperate and the search to find a solution is overdue. This space is the warehouse and material storage locations in facilities.

By upgrading to modern, automated warehouse storage solutions, you can not only cut real estate cost and decrease operating costs, but you can reduce manual labor while increasing worker productivity, maximize order throughout, and increase pick order accuracy! By using effective and intelligent storage solutions, you not only improve your material storage and handling, but your entire operation.

Explore these 6 critical tips to help you identify inefficiencies in your facility workflows and what to look for when exploring a solution that can provide the largest return. Some of these tips may sound on-the-nose but read into it, there may be more to it.

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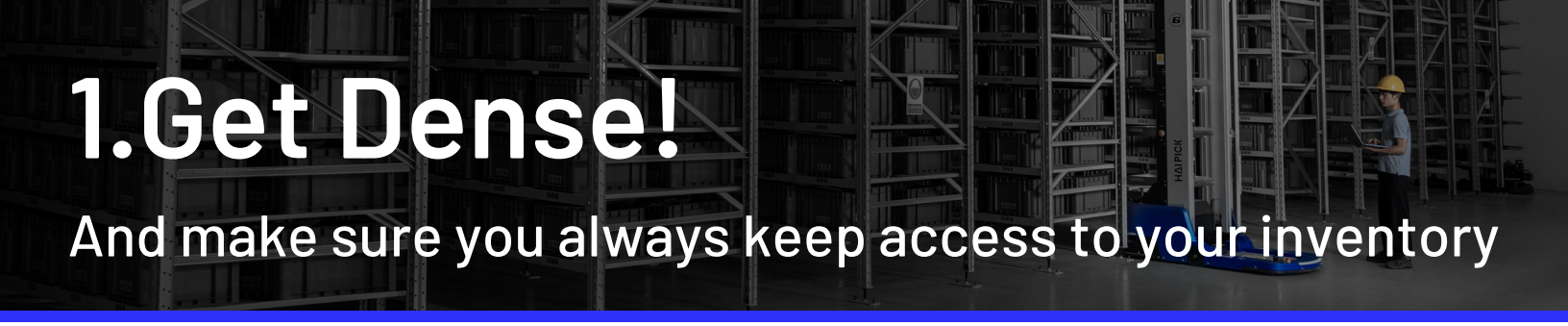
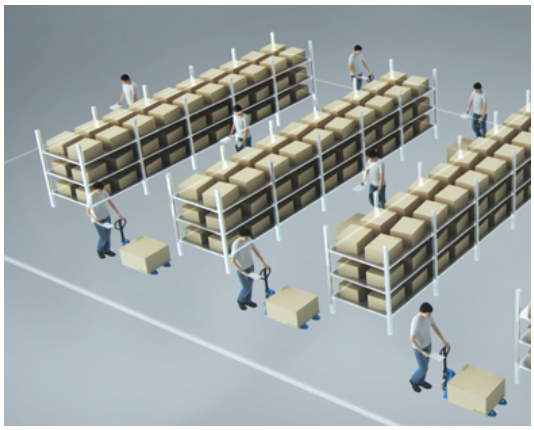


1.Get Dense!

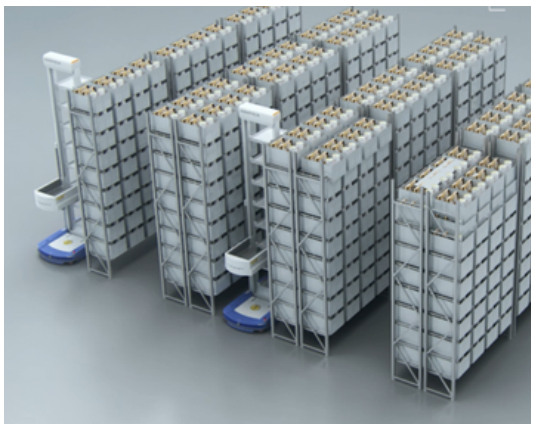
And make sure you always keep access to your inventory

When evaluating potential automated storage solutions, look for 3 key factors that will help you better ensure maximum success and use of space: Height, Density, and Number of Aisles.

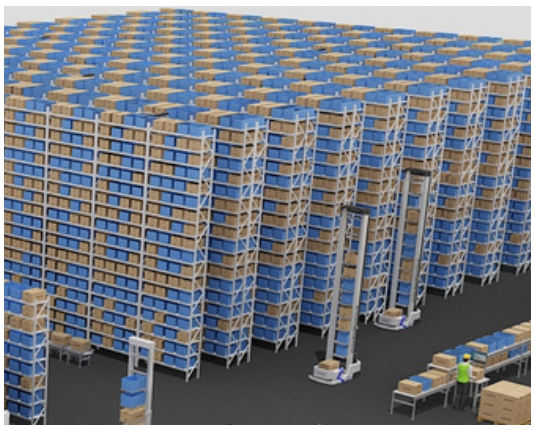
Look for solutions that maximize the use of your open overhead space. Instead of storing goods on shelves 5-7 feet high where an average person can reach every shelf, store totes of goods up to 30+ feet high and allow automatic solutions to deliver totes to your workers. This can improve workflows while reducing your storage footprint overall.



Manual operations, wide aisles, and low shelving



Robotics case-picking operations with thin 4ft wide aisles



33ft high storage maximizes use of overhead space

Then, look for automatic equipment that allows for a deeper reach into shelving. This can allow more goods to be stored on each shelf, shelving units to be placed back-to-back, and reduce the number of aisles needed. Combined with the optimal use of vertical space, many facilities see a reduction in their storage footprint by 50% -75%.

While storing your goods higher and closer together, it is important to maintain aisles while balancing storage density. If there ever is an emergency in your building, aisles will allow your staff unrestrained access to exits. Aisles also allow emergency responders the ability to quickly access an emergency in the building without obstacles and allow fire suppression systems uninhibited access to floor level.

In overly dense storage solutions, it can be difficult (or near impossible) to clean, particularly at ground level. Maintaining aisles in your automated storage areas allow facilities to maintain cleanliness – something that is particularly valuable in the food and healthcare industries.

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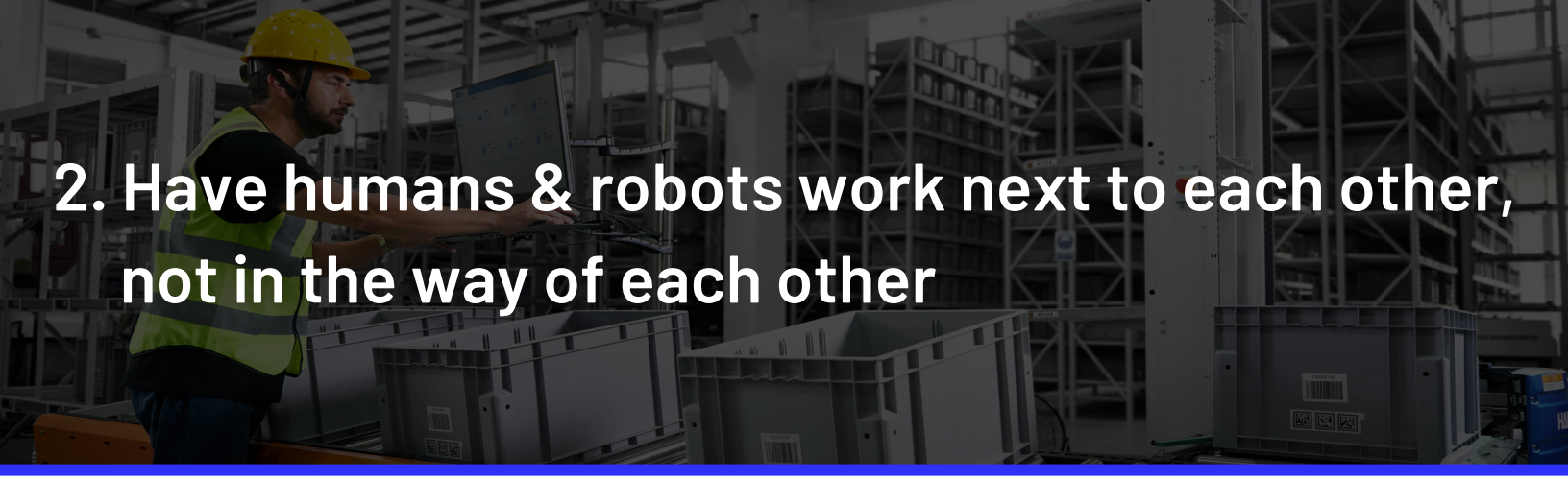
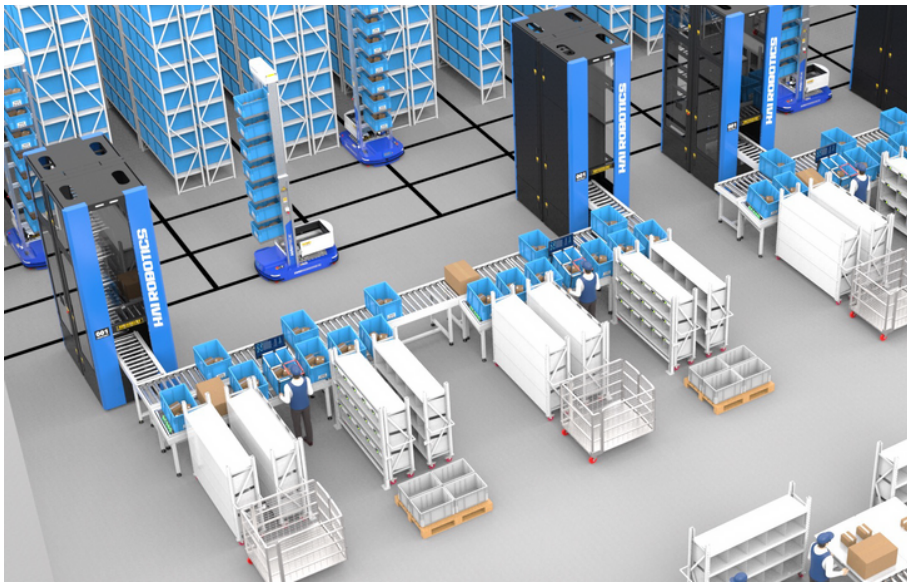


2. Have humans & robots work next to each other, not in the way of each other

As your business continues to grow, consumer demands shift, or company needs change, you may find density is not the end-all fix for storage solutions. Your facility may need a 2-part update – workflow improvement combined with dense robotic storage.

Look for robotic solutions that can work in a dense storage environment, like Autonomous Case-handling Robots (ACR), then separate the automated storage areas and human work areas. Though robotic equipment can often work safely alongside people, natural human behavior will always lower efficiencies from the maximum potential.



Highly efficient storage solutions have hand-off points where the robotic workflows and human workflows meet. These operator workstations can be ergonomically designed, providing the least amount of strain on the worker, and optimizing the tasks in that area with – material retrieval, order picking, or system replenishment, for example. Each task has its own needs, movements, and workflows, so it is valuable to have an appropriate workstation for each task. Avoid a "one-size-fits-all" approach for workstations – though it may be easy to design, present, and understand, it may not always be the most efficient.

Workers can walk up to 15 miles a day picking orders in typical warehouses. By providing workers a workstation, it eliminates wasted travel time for order picks and allows workers to fill more orders at any given time faster, using less energy, and with increased accuracy.

3. Store identical SKUs close together

If 1 order needs 17 widgets, 5 unobtainium, and 11 flux capacitors, but the picker needs to go to 7 locations to collect enough quantity for the order– you've lost valuable time and reduced efficiency.

Look for automated storage solutions that have the ability to balance inventory across the entire system, in real time. By storing same SKU's that are in multiple containers close together, while also accommodating necessary SKU mirroring for fast moving items, you can maximize storage efficiency while avoiding congestion or overcrowding in one area.

This may not be appropriate for all applications, but it can often help reduce time and travel needed for order picks. The robotics equipment will be able to retrieve and deliver totes of the same SKU to the picking station - together.

Same SKU totes delivered together allow an order to be fulfilled and pushed through faster. Storage solutions that don't commonly store same SKUs together typically take longer to retrieve totes and then deliver them to workstations at separate times. This usually means the order request stays in the workstation longer and takes more time to fulfill.

The key to accommodating this practice is a powerful inventory control engine (either through your WMS/WES or Automation Platform) working in conjunction with your automation to facilitate inventory allocations and decisions around slotting, consolidation, top off, clean pick, FIFO, LIFO, Lot, and serialization Control.

4.Use automated storage solutions to extend labor

Automated storage solutions as part of workflows that have pass-off points to human workers could help with employee retention, improve each worker's productivity, expand the hiring pool, and create an incentive for new employees – all while reducing operating costs and increasing throughput.

Use automated workstations as a workforce incentive. In many traditional distribution centers and warehouses, workers often walk up to 10-15 miles a shift collecting SKUs for orders. This is exhausting for employees and can exclude an entire part of the workforce that physically may not be able to achieve this.

Workstations allow operators to remain in 1 location while they pick orders or fill material requests and, as a result, the job is less strenuous and time travel between picks is eliminated from the workflow. This can expand the hiring pool to people with some physical limitations while reducing the overall amount of energy needed to execute the job responsibilities, making the position more appealing to workers. Creating a more ideal working environment can help companies maintain their workforce and draw in new potential hires.

A workstation can also allow operators the ability to fill 30 or more orders at one time compared to capacity limitations of walking the facility for order picking. These increased picking batches allow for automation to become much more efficient. The larger the quantity of orders being fulfilled at once, the more flexibility a system will have to batch same-SKU orders. As that batch factor increases, the number of moves required for the automation decreases. This will result in a hyper efficient automation platform and operator.

5. Most automation companies claim flexibility... but bend them to test what that really means

By now, most industrial automation companies can expand and change as a customer's needs change. However, some solutions can adapt faster and with far less disruptions to operations than others. When evaluating new solutions, ask the provider these questions to discover what "flexibility" means to them:

Are you able to temporarily flex up or down as needed for peak seasons? Or are modifications typically designed for long-term operational changes?

Their response will clarify what the provider defines as "flexible."

From day 1 of the start of a modification, to being up fully running, how long has it taken for past customers?

This will let you know if the solution is flexible or simply changeable. Flexibility allows you to quickly make modifications to respond to more immediate operational needs and is critical to keeping operational costs down. If the provider states they can adapt up and down for peak season, but it takes a large amount of time to make any changes, their flexibility may actually be a little more rigid.

What, if any, parts of the system will be out of service during an expansion?

Developed solutions providers often only need a small amount of the system, if any part, to go offline for updates. If a large part of the system must go down for modifications, there is a high risk of temporary loss of efficiencies and increases the risk that any errors in the update will cost your facility more down time for de-bugging. Make sure that if a large part of the system must be involved in an update, that the updates are extremely fast and evaluate how robust the solution is with this next question.

How many of your past customers modify their operations?

Truly developed automated storage solutions, like Hai Robotics, advise customers to design for average use and flex up and down as needed for peak and slow season. This can help keep operating costs at a minimum while maintaining maximum efficiency. If the provider's solutions are often modified to respond to a facility's changing needs, it's a good sign the solution is flexible, easily scalable, and will best support operations.
If only a few customers have modified their solutions, and those customers have only done so once, it's a sign that the solutions may be more rigid.

When customers make adaptations to their solutions, what modifications are commonly applied?

This question will allow you to see if there are frequent, recurring modifications. This can indicate easy flexibility that responds to demand, or if systems are simply expanded upon for long term use. Seeing a lot of permanent expansions of a solution is not necessarily a bad sign, this can be common for many solutions. When appropriate, many solutions providers recommend starting automation implementations small and scaling up later. This can allow operations and staff to adjust to the new workflows more naturally while minimizing disruption to operations. So, if a solution is often scaled up for more permanent means, it can indicate the system is providing great value, while more seasonal modifications are an indication of easy flexibility. The jackpot is when you find a solution that provides both!

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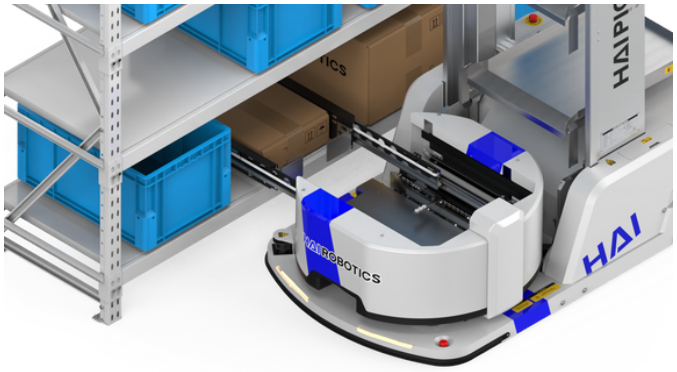
6.Create Rhythm

Standardize the size of storage containers

Adding automation often means creating standardized storage units. This may be an added step compared to using whatever container may fit all the goods, but variability leads to clutter and inefficiency.

Look for automated solutions with standardized storage sizes. This helps with repetition, speed, and high efficiency movements throughout the entire automated system and with human interfacing. Repetition creates rhythm that can help humans be more efficient too – when people can reliably anticipate what is coming, they can best anticipate their next actions, helping to increase order-fill-speed and throughput.



Most automated storage systems have standardized bins to help create that rhythm. Look for solutions that use standard dimensions like width and length. This can allow for a varying height of the container while maintaining the repeatable movements.

This can help to increase storage density and allow for variable sizes of goods. Some particularly advanced solutions can also manage different kinds of container materials in a system, as long as the container meets the automation-required dimensions (width and length.) When appropriate, this can help increase efficiencies at picking stations and during inventory refill.

About HAI ROBOTICS

Hai Robotics is the pioneer in Autonomous Case-Handling Robotic (ACR) system. We are committed to reducing our customer's storage footprint, boosting throughput with increased speed & order accuracy, maximize workflow efficiencies with reduced operating costs, and improving worker productivity.

Our high-capacity ACRs provide a remarkably small footprint with a vertical reach over 30 feet high, allowing for our solutions to reduce a facility's storage footprint up to 75%. Combined with our highly effective AI-driven software, our robotic equipment manages the efficient storage, movement of material, and workflows while improving worker efficiency by 200%-300%.

Hai Robotics' solutions are helping warehousing, distribution centers, and manufacturing facilities in over 30 countries advance their operations. Currently, 3PL, e-commerce, apparel, retail, grocery, automotive & manufacturing, electronics, and pharmaceutical industries are already turning to HAI Robotics to enhance and accelerate their operations.

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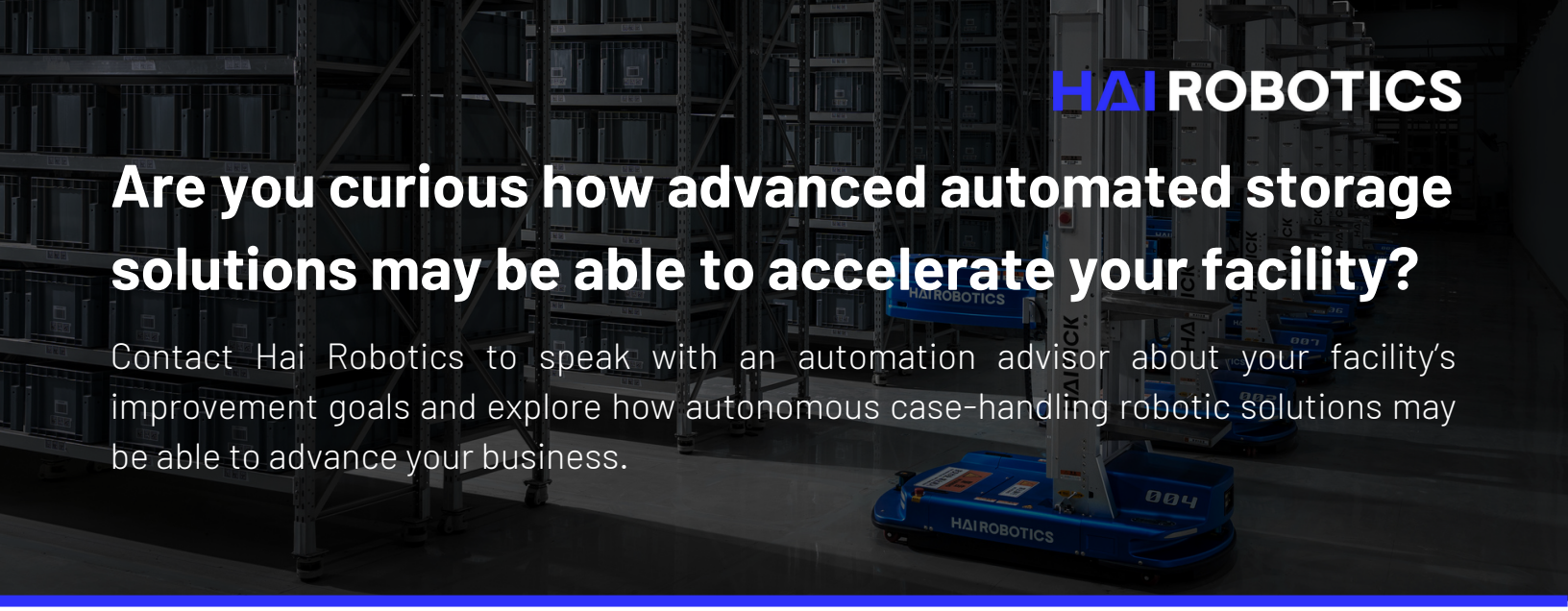

Are you curious how advanced automated storage solutions may be able to accelerate your facility?

Contact Hai Robotics to speak with an automation advisor about your facility's improvement goals and explore how autonomous case-handling robotic solutions may be able to advance your business.

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