

Resolve to reslot



Slotting systems can deliver big results, but are they right for your operation?

By Bob Trebilcock, Executive Editor

your warehouse

Slotting your warehouse is much like a New Year's resolution. It's a great idea on paper, but few warehouse managers actually follow through on that resolution in a disciplined way.

"The majority of customers will tell us they know they should do slotting," says Ron Grove, vice president of supply chain consulting for TZA Consulting. "But in most cases, what they have is someone in inventory control who gets a report on what's coming into the warehouse and decides where to put it."

"Slotting is a thankless job," adds Jeff Wetherell, vice president of systems integration for SI Systems. "People talk about it, but no one really wants to do it."

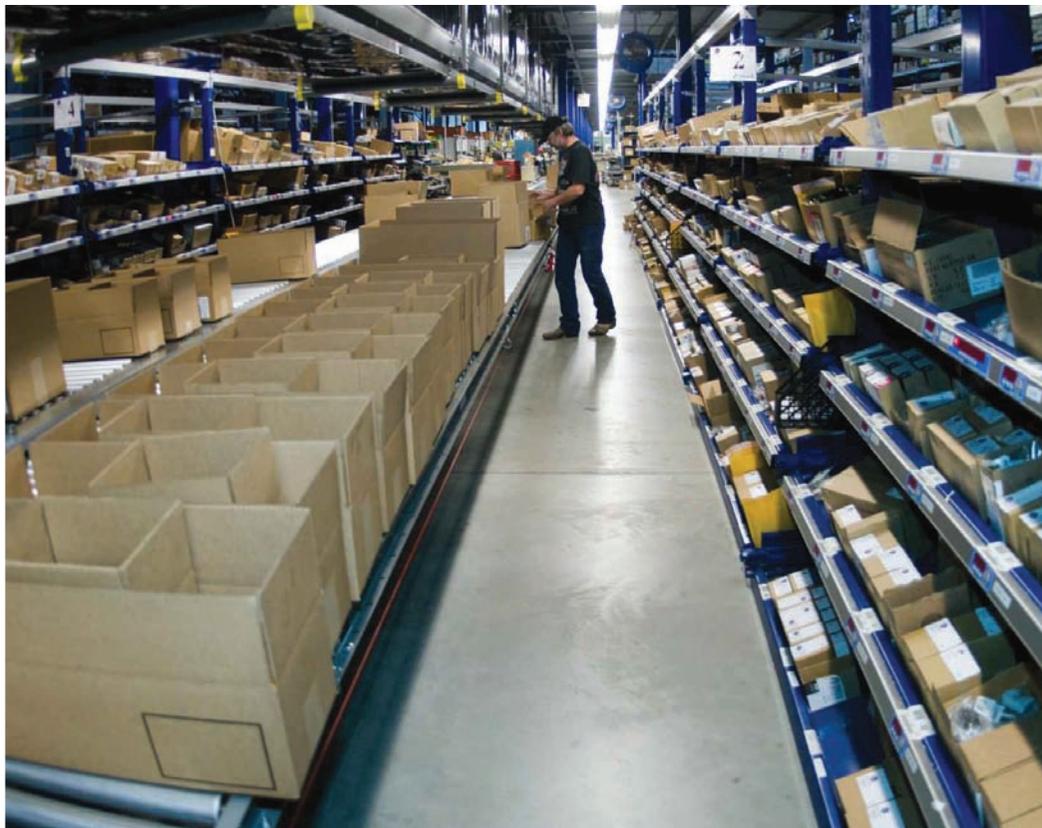
The payback for effective slotting, however, can be significant, especially for end users with large facilities and lots of stock keeping units (SKUs). "We have one customer that saved \$500,000 a year by keeping their system strategi-

cally slotted," says Wetherell.

Those savings come from improved worker productivity that allows you to schedule fewer workers in a manual picking area or to reduce the number of shifts you operate. While not everyone will see a \$500,000-a-year savings, averages of an 8% to 15% improvement in picking and replenishment labor are common.

"You may also see a reduction in damage, an uptick in accuracy and some savings in the palletizing area," says Grove. "But, those benefits are harder to quantify."

As companies become more sophisticated in distribution practices and tie what happens in the warehouse to the store, slotting may also deliver cost savings across the supply chain.



Dynamic slotting allows facilities with high SKU counts and frequent turnover to fine tune the slotting in piece-picking areas on a frequent basis.

A place for everything and everything in its place. That's the underlying philosophy behind slotting optimization tools.

Some discount retailers, for instance, slot their warehouses to build aisle- and department-ready pallets that reduce the labor in the stores. "When we did the cost benefit analysis, slotting increased the cost of palletizing in the warehouse, but that was off-set by labor savings in the store," says Peter Schnorbach, senior director of product management for Manhattan Associates.



How slotting works

What is slotting? Think of it as both a process and a tool.

The process of slotting, or reslotting, is based on the old premise everything in its place and a place for everything. Slotting determines the best place to store each stock keeping unit in a facility based on a variety of factors. "The objective is to reduce travel time, increase picking accuracy, eliminate injuries and increase the asset utilization of both labor and warehouse space," says Schnorbach.

A slotting tool is a supply chain execution software application that uses algorithms to create a slotting plan based on a variety of factors.

Slotting software can be licensed as part of a warehouse management system (WMS) provider or as a standalone application. It can also be offered as a service. In that model, the end user provides data and a consultant performs the analysis and makes the recommendations.

"In a service arrangement, you work with the customer to define their system, their inventory, their order information and the rules that govern their facility," says Wetherell. "Then, the consultant performs the analysis, makes recommendations on where and why they should move certain products and shows the expected savings."

Regardless of the model, the tool takes into account a variety of factors.

The starting point is travel times associated with picking the order based on how often that particular SKU is picked. "The more often an item is picked, the closer you want it to the front of the warehouse," says Schnorbach. In addition, you want items that are picked often close to one another; those items should be in the most convenient levels for picking in the rack. "You want a popular item at eye level," he says. "You don't want it on the fourth level of the rack and you don't want heavy items that can cause

a back or shoulder strain up high," says Schnorbach.

Picking frequency is the starting point. But slotting systems can consider other product characteristics or picking strategies, such as:

Unit and slot characteristics: Some items can only be slotted in certain areas of the facility based on the height and weight of the item.

Replenishment requirements: The system can determine the amount of space—or the number or size of the slots—allocated to an SKU to minimize how often that item is replenished. You may only want to replenish a pick face once a shift or once a week, depending on the item.

Families of items: Items that are often ordered together, like fishing rods, reels and tackle, may be slotted next to one another to minimize travel.

Velocity of movement: Storing all of the fast movers in one aisle in a pick zone can create congestion. For that

reason, a slotting plan may spread the fast movers throughout the warehouse to improve the flow of the pick line.

Storage capabilities: In addition to slotting based on the equipment already in a facility, the system may be able to recommend the racking and equipment that should be in the warehouse for optimum efficiency. For instance, based on changes in order patterns, a facility may need more carton or piece picking locations and fewer rack locations than are presently in the facility.

In addition, slotting plans may be created based on historical data or a forecast of demand. Or, a slotting plan may be created based on the orders on hand. "Holidays are very important to one of our food industry customers," says Tom Kozenski, vice president of product strategy for RedPrairie. "They will slot their warehouse based on the history of what they sold last year." Other customers with more predictable products may slot based on the orders they know they're going to ship in the coming quarter.

In any of those models, the slotting tool also takes into account the labor associated with making those moves and only recommends moves that can be justified economically. "A good package won't recommend a move that costs \$4 but only saves \$3 in picking labor," says Grove.

Dynamic slotting

A slotting plan can cover an entire facility, or it may focus on an area. "I may only want to reslot the appliance area or the electronics area, rather than the whole warehouse," says Kozenski. "That way, I can take an incremental approach to optimizing the facility."

And while slotting is typically done over a longer period of time, order fulfillment operations that fill direct-to-consumer orders or handle a rapidly changing inventory may need to reslot specific areas within their pick zones more frequently to keep up with chang-

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—Tom Kozenski, RedPrairie vice president of product strategy

ing demand. Those could include a pick-to-light or voice pick area in a mezzanine.

Real-time, or dynamic, slotting addresses that need. "The objective is to give supervisors the ability to optimize their pick face slotting in real time if need be," says Lance Reese, technical solutions director for Intelligrated's order fulfillment group.

There are two components to dynamic slotting. The first is the initial slotting when the pick zone is being set up, such as the start of a promotional period, the introduction of a new product line, a holiday season or a change from summer to fall merchandise. In the initial setup, the system will analyze the dimensions of each SKU that is inbound for the picking area and recommend the width of the slot that is optimal for that product or assign a slot location.

Once the system is in operation, the system monitors the activity in the pick zone and makes recommendations on what to move and where to move it to gain efficiencies. This can happen on a much more frequent basis than traditional slotting.

"Typically, the system will make recommendations on the five worst offenders on a daily basis," says Reese. "That way, you're not making massive moves, but simply fine-tuning the process."

To slot or not to slot

How often then should a facility reslot? The answer depends on the type of facility. Companies with seasonal product changes may only need to slot when the seasons change. On the other hand, grocery chains or discount retailers that run weekly or monthly specials may have to reslot for each promotion. Food and beverage mixing centers that

receive a number of brands and products may have to reslot several times during a shift based on what trucks are arriving at the dock and the products that need to be shipped.

"Their warehouses don't grow in size just because they're handling more products," says Kozenski. "The only way to accommodate all of those products is to reslot."

Regardless of how often a facility reslots, slotting software is often integrated with a warehouse management system and a labor management system to get the most out of the tool.

The labor management system can calculate the cost of the labor associated with the slotting plan based on the labor standards used for that facility. That process provides for an accurate cost/benefit analysis before deciding whether the gains from reslotting are worth the effort.

If a warehouse accepts the slotting plan, the warehouse management system executes the plan by interleaving the reslotting tasks with other putaway, picking and replenishment tasks that have to be performed during a shift.

And by reslotting in a disciplined way, it becomes part of the routine. "The key is to treat reslotting like any other task in the warehouse," says Kozenski. "Then it becomes another system-directed task and the WMS will only issue the work when it knows it won't disrupt picking." □

Companies mentioned in this article

Intelligrated: www.intelligrated.com

Manhattan Associates: www.manh.com

RedPrairie: www.redprairie.com

SI Systems: www.sisingenuity.com

TZA Consulting: www.tzaconsulting.com