



PROFILES IN LEADERSHIP

THOUGHT LEADERSHIP IN THE DC: SLOTTING IN THE DYNAMIC DISTRIBUTION CENTER

LEVERAGING ADVANCED SLOTTING SOFTWARE TO MEET THE CHALLENGE OF ITEM DEMAND FLUCTUATION

In the fast-moving environment of today's dynamic distribution center, the rapidly evolving nature of demand throughout a product's lifecycle – from new product introduction (NPI) through product phase-out – creates the classic challenge of determining the best pick slot(s) to assign to an item. The stakes are high, as resource constraints put a premium on the ability to get the latest hot product in and out of the DC and on the way to the consumer as quickly and efficiently as possible.

Traditional software systems have offered tools for slotting, but these solutions have lacked the powerful optimization capabilities necessary to generate the most efficient slotting solution over time. However, leading companies are looking to a new generation of advanced slotting software to address this

problem. By tracking periodic movement and continuously evaluating not only whether an item is correctly profiled into the correct slot type but also whether the assigned pick slot is in the proper sequence in the pick line, this next-generation software offers the promise of responding more quickly – and profitably – to rapid swings in product demand.

Handling Promotional and Seasonal Activity

Typically, new items are “pushed” out of the distribution center in order to fill a pipeline, perhaps retail outlets. These “pushes” are in the form of allocations or promotions, which involve higher than usual demand for the product until the pipeline is full or until the promotion has ended. Seasonal products pose a similar situation.

In either case, using slotting software, operators are able to assign temporary “floor” slots to these products. These floor slots are chosen for their convenience for selection and replenishment, a necessity when shipping a larger than normal amount of product. Upcoming allocation, promotional or seasonal activities may be sent to the slotting software in the form of a product movement value that reflects the activities. The activity may specify that an item be slotted in an “Allocations” or “Promotional” area on the floor, and the slotting software will assign a correct location based on product attributes (size, weight, configuration, etc.), estimated product movement and slot locations available at the time.

Inflection Points

The key to successful slotting is to handle movement inflection points. The increase in movement when an item goes into its promotion, allocation or season is easier to handle, as it will become obvious that stock-outs and excessive replenishment are occurring until an item is re-

Optricity Corporation

Optricity Corporation designs, engineers and delivers mathematically advanced optimization engines to enhance return on supply chain investment. Capitalizing on leading Web technologies, improved computing algorithms and analysis techniques, Optricity's tools integrate with and power forward thinking supply chain solution providers. Optricity provides end-users (distribution operations) with its patent-pending slotting product, OptiSlot™. As with all of its optimization tools, Optricity's advanced slotting technology stands out for its quality of solution, speed, usability, maintenance, and visibility. For more information, visit www.optricity.com.

slotted to handle the greater demand.

The more difficult issue is where an item should be slotted once an allocation, promotion or seasonal period has ended. In this situation, there is no naturally occurring “red flag” indicating that an item is still occupying a large opening even though its movement is decreasing due to its leaving its promotion, allocation or season.

The success or failure of slotting therefore lies mainly with the operator’s ability to provide a movement value for an item to be used during non-promotional, non-allocation or non-seasonal times. Useful slotting software maintains product movement history, and these historical data may be used to calculate an estimate of ongoing movement, including the ability to use past seasonal movement trends such as data about movement inflection points.

The Challenge of New Products

However, new items obviously lack the necessary product history and therefore must be handled as exceptions. For this reason, slotting software must have the ability to use a forecasted movement value for a specified amount of time while movement history builds in the database. When enough history exists, the old forecast can be discarded, and the item may be profiled to the proper slot type and location based on its actual, historical movement values. Once again, at the movement inflection point, useful slotting software will consider item attributes (size, weight, configuration, etc.) and the appropriate movement value (historical average, forecast, etc.) to profile an item to the correct slot type and location.

Furthermore, the software will adhere to additional slotting goals, perhaps selecting a location based on grouping restrictions, “golden zone” slotting, weight restrictions and so forth in reassigning items to slots. The result is a slot assignment that best meets the user-defined slotting criteria. Finally, useful slotting software must create an efficient work plan to move items from one slot assignment to another, as it is this actual physical labor that creates the benefit.

Conclusion

Because movement inflection points occur throughout the product life cycle, slotting is a dynamic event. Software may be employed to do an initial slotting based on a snapshot of items and slots in a facility. More importantly, slotting systems must be used on a regular basis to capture item demand fluctuations and to reassign items to slots based on those changes. The benefits are many, including reduced selection and replenishment costs and significant gains in space utilization.

DAN BASMAJIAN PRESIDENT AND CEO, OPTRICITY CORPORATION

Dan Basmajian, forefather of first-generation slotting and master routing software and innovative thought leader in specialized optimization techniques, has returned to supply chain to respond to what he sees as an opportunity to influence the supply chain community. Basmajian has designed new optimization engines to supercharge existing supply chain solutions, enabling current systems to achieve higher payback.

Basmajian predicted the move many companies are making as they opt to standardize on integrated supply chain systems. Basmajian’s vision provides for optimization engines that dovetail with current systems rather than repeat existing core competencies. The engines add functionality rather than disrupt the system.

Functional area data collection, reporting and even some predictive modeling have become ubiquitous due to the pervasive adoption of supply chain management systems. Basmajian believes that the next wave of return will occur at junctures in the supply chain, those intersections where one function meets another. Optimizing across functions, which Basmajian has dubbed “Juncture Optimization” (JO), rather than simply optimizing within or providing visibility across functions, offers more meaningful solutions to supply chain challenges. Basmajian extols optimization across functions such as order and inventory management, warehousing and transportation to solve complex problems with multiple, often competing goals by applying optimization techniques that exploit the structure of the problem.

“There’s a big difference between systems that capture and manage data and enable visibility and those that employ mathematical optimization engines to determine least cost solutions,” Basmajian says. “Visibility, in and of itself, provides the input for good decision-making but does not provide the optimized answer.” Basmajian’s technology gives his customers the chance to infuse optimization engines into their systems, allowing them to drive differentiation and respond to market dynamics to achieve greater payback while supplementing, rather than replacing, their existing infrastructure.

Basmajian has more than 20 years of experience in the high tech software development industry, as a company founder, chairman and CEO, senior management team member and advisor. After graduating from Duke University’s Fuqua School of Business, Basmajian and two Fuqua professors founded Performance Analysis Corporation (PAC). After acquiring full ownership of the company, he led PAC to become a well-known supply chain niche software provider. After PAC was acquired by Manhattan Associates, Basmajian served on the senior management team that took that company public.

Rethinking Your Reslotting Strategy

Optimal slotting benefits from slot maintenance performed in sync with distribution center dynamics

Cost effective slot maintenance frequency depends greatly on the dynamics of the warehousing environment under consideration. Constraints within the distribution center and factors external to the facility affect reslotting frequency and timing decisions. Influences or “destabilizing events” such as product volume and mix changes, seasonal demands and promotions create periods of instability within the warehousing environment.

Opportunistic responses to such destabilizing events allow for reslotting that increases picking efficiency. Identifying inflection points and reslotting at the appropriate time using underutilized labor at standard rates minimizes costs and improves payback cycles. Once a slotting strategy has been determined and resultant rules established, slotting technology can be employed to achieve a reslotting strategy that minimizes costs and optimizes efficiency according to the predetermined warehousing objectives.

To learn more about how you can drive greater efficiency in your warehouses, read the white paper “Rethinking Your Reslotting Strategy” at www.Optricity/SDCE/Free_Reslot_WhitePaper.