



# The Distribution Factor

Helpful Information and Ideas for the Distribution Professional

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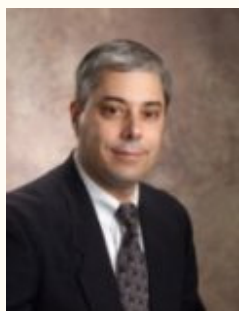
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Feature Story: Coping with Seasonal Crunch Time



**Sam Flanders, President WMC**

**This month we look at how to cope with your seasonal crunch period. For many, this period begins this in August and continues through Christmas.**

**Next, we look at a way to measure performance and give feedback using a "dashboard" in your distribution center**

**This month's video covers pick to light systems.**

**Finally, we look at the advantages and challenges with conveyor based zone picking.**



**Above: Picking Aisle Jammed with Carts**

**Seasonal order demand can create conditions that are unique and unexpected. If you are not prepared, it can cripple an otherwise well-designed and managed operation.**

Summer is almost over, and if you are in the business of distributing to consumers, you may be thinking about seasonal crunch time. What can you do to get ready for the impending seasonal onslaught? How can you be sure to keep your service commitments even on your heaviest shipping days?

Processes that work great most of the year can implode when order demand spikes. You must be able to minimize bottlenecks and throttle up your resources to respond to seasonal customer driven demands. The alternative is to risk alienating customers, who may find another place to shop next year.

This month's feature article will give you tips for preparation and planning. I will suggest specific ideas on how to reduce the strain caused by seasonal order spikes.

- **Learn from the Past - or from Similar Businesses** - The best way to prepare for challenges your seasonal period will create is to look at history.

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## The Distribution Center Operations Forum

*A unique two-day forum on  
optimizing layout, process and  
technology for streamlined  
distribution center operations.*

Chicago - September 14-15  
San Diego - September 28-29



**Presenter:**  
**Sam Flanders, 2wmc**

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If you are an established operation, look to the prior year. Speak to staff in each area and find out what types of problems occurred, and specifically, what types of bottlenecks slowed down order processing. If you have stats on orders processed, find out when your busiest day(s) and week(s) were, and how you did on during those times. Did you carry over orders, or miss service deadlines? What about accuracy or damage complaints? If you don't have this data, be sure that you collect it this year. Also, consider anticipated growth when preparing your peak operating plan. If you are a new operation, try to use a benchmark from a similar business to estimate what your seasonal peak will look like.

- **"Why Are the Aisles So Big?"** - I've given tours where this question was asked to me directly. To the guest touring the facility during a slow time of day or on a very slow shipping day, it is a logical question. They see only a couple of people processing orders in a 9' aisle, which much larger than it needs to be for the work being done. What they don't know, is that during crunch time, that same aisle may be filled with 12 pickers and their carts, and these workers need to be able to work efficiently and pass each other easily. If an aisle is crowded with pickers, the pickers need to be able to maneuver their carts around one another with a minimum of effort. If the space is too tight, you can bet that your pickers will end up waiting for co-workers to get out of the way, rather than trying to squeeze through. It's human nature and its polite, but it will result in lost productivity. The same reasoning goes for your staging areas. Make them big enough to handle the equipment to be used and the materials to be staged on your busiest days.
- **Plan people for peak periods** - If you had service failures last year, did this happen because you did not enough people to do the work? If so, make sure you start thinking about staffing now. Consider providing "permanent" seasonal positions, where associates can take advantage of company benefits, where the seasonal associates pay a larger percentage (or all) of the cost. Colleges on trimester systems often let their students out just before Thanksgiving. You may be able to get in touch with a school's placement office or job board to post seasonal work opportunities. You also can hire part-timers with a formal agreement that they will ramp up their hours to a higher level during your seasonal peak period (kids are back in school during this time).
- **Plan Extra Stations, Systems, and Equipment** - Even if you have the people, you still need enough equipment and space to get the job done. For example in the packing area, do you have enough manifest stations to get your peak load processed on your busiest days? If not, plan temporary space, where you can set up stations and equipment. In some cases, you may need to perform extra travel or do the manual labor, such as transporting packages in a hamper rather than taking advantage of a conveyor, but you will still get more orders processed. Similarly, make sure you have enough RF terminals, carts, voice units, or whatever other technology you are using. Finally, make sure that your computer system can adequately handle peak volume activity.
- **Take advantage of High Volume to Work Smarter** - When order volumes are high, you may have opportunities that you would not have during quiet periods. For example, with a higher volume of orders, you may be able to combined orders in ways that wouldn't be possible during slow periods. For example you might group orders into different size groups or order service levels. Doing this can help with picking vehicles and also with processing of standardized requirements at pack stations (for example a cart with only overnight orders on it).



Click the icon above to be taken to our White Paper page. This page has 4 different white papers of general interest to those who manage order picking operations. There are two white papers on general order selection: strategies and equipment, and there are also papers on carousels and voice directed picking.



Click on the icon above to be taken to our material handling resource locator guide. This guide is interactive, easy to use, and driven with an icon-based interface. Using it, you can quickly locate information on systems, software, and equipment. Each area provides links to vendors as well as a brief description of each technology. Try it out and bookmark it for future reference!

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## A Look Ahead to Next Month

### Feature Story:

World-class Order Selection: Simple Ideas that Don't Cost a Lot

### Video of the Month:

Small Item Sorter

### Operations Spotlight:

Making the Most of Pallet Storage

### Technology of the Month:

Vertical Storage Options

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## Video of the Month: Pick to Light Systems

Pick to light (PTL) systems were one of the most innovative order selection systems to be introduced to assist with broken case order selection. I worked for Kingway, the pioneer in pick to light in the early 90's during PTL's heyday, and installed many systems at K-mart DCs around the country.

PTL is great for larger orders and high density picking. Rates from 200 to 1,000 lines per hour are possible. This is because PTL lets an operator quickly see all of his picks in a zone using flashing lights, and then use the quantity display to select the right amount. PTL is less efficient with smaller orders in large zones, because it takes more time to find the light, and then the picker spends time walking to the pick. If searching and walking start to become a substantial part of the pick process, the efficiency of the PTL system is degraded.



Above: PTL Module - Courtesy Knapp USA

### Video Courtesy:

**Dematic  
Knapp USA  
Lightning Pick**

**Requires Flash**

Clicking the graphic to the left will open a new window and play your video.

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## Operations Spotlight: Create a DC Dashboard

An automobile dashboard helps a driver to get a "bird's eye view" of how his car is doing and it gives him immediate feedback so that he can modify what he is doing. Similarly, a "DC Dashboard" can help you and your people to get timely feedback on how they are doing in the DC, and allow them to make adjustments based on this information. This story will investigate how to create and use multiple dashboards that are individually suited for different purposes within your operation. In this article, a "dashboard" refers to a set of metrics that is updated regularly, providing information that is relevant to the particular group, area, or associate.



Above: Car Dashboard (left) Visual Dashboard (right) Courtesy Symon

### Customize Dashboards for Individual Needs:

You should create multiple "dashboards" in your facility, each customized with





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metrics and information for a particular audience. Senior management will be most interested in getting a view of how the entire facility is doing. An area supervisor will want to know how well he is doing keeping up with the work for that area. An individual associate will want to know how he is doing today and with respect to his peers. In addition, in each area and for each associate, keep track of daily, weekly, and monthly trends, and have a way to summarize these results visually.

- **Displaying Dashboard Information** - In order for dashboard information to be useful, metrics need to be easy to see and understand, and the information should be updated regularly. You can use whiteboards, chalkboards, hand held displays, or electronic scoreboards. In the case of manual systems, updating takes time and effort, but the effort you make to keep information updated will send a clear message to your people. If you have a central database, software systems are available that can read the data and display key performance indicators automatically in real time. Finally, facility "electronic scoreboards" can be connected to these systems to make it easy for everyone to see what is happening.
- **Dashboard For Senior DC Management** - At the highest level, DC Management wants metrics telling them how the operation is doing, and letting them keep track of performance over time:
  - Labor Cost per Order
  - Labor Cost per Pick Line
  - Shipping Cost per Order
  - Accuracy per Order
  - Inventory Accuracy
  - Area by Area Averages
- **Dashboard for Functional Work Areas**- For a particular work area (such as order picking, packing, or returns processing) metrics should be customized for the job being done. Here are some general examples of information that you can track:
  - Orders Pending
  - Orders Completed Today (or shift)
  - Orders per Hour
  - Lines per Hour
  - Quality Measure (accuracy, damage, etc)
  - Week or month to date summaries
- **Dashboard for Individual Associates** - For individual associates, provide information on how they are doing compared to any established standards and compared to others. They should also get an idea of how they are doing over time:
  - Individual Production Rate (orders/lines)
  - Individual accuracy or quality measure



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- o Daily, Weekly, Monthly Trend
- o Performance Compared to Standard
- o Performance Compared to Peers
- o If an incentive program is in place, what does the associate have to do to get to the next bonus tier?

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## Technology of the Month: Conveyor Based Zone Picking

I've intentionally put this story on conveyor based zone picking in with my story on pick to light, because the Siemens Dematic PTL video shows a zone divert system. If you haven't watched the PTL video, you may want to do so before reading more.

**What is Conveyor Based Zone Picking?** Conveyor based zone picking is an automation enhancement that can dramatically improve operational performance in specific situations. It works by separating an order into 2 or more distinct picking zones, and having the conveyor control system determine what zones the order needs to visit. It is most often used with a shipping carton or tote, traveling on a conveyor system. Here is how it works:

1. An order is assigned to a carton or tote by putting a bar coded label on the carton or tote
2. An intelligent control system figures out the zone routine required to fill all picks in the order
3. The tote is routed either sequentially or randomly to each zone requiring picks
4. When the tote arrives, it must be identified, either automatically or by a picker scan
5. The picker makes the required picks and then "pushes off" the tote so that it can continue to the next zone with requirements
6. When the last pick is completed in the last zone, and the order pushed off, the order goes directly to a pack area



**Divert, Scan/Pick ,  
Push Off  
Courtesy Dematic**

**Intelligent Slotting Drives Benefits** - It is extremely important that you pay attention to product slotting and order size to get the maximum benefit from a zone divert system. Conveyor based zone picking works best with orders that have a large number of picks for every zone that the order visits. If large orders are not available, it may be possible to slot your product so that orders stay within a single zone. This could happen if you keep product families together, or group products by other common characteristics. This way, the pick density in each zone is maximized, and the overhead of handling the tote becomes justified. In both cases, tote handling is minimized relative to the order selection, and therefore the system is used efficiently.

**Key to Savings with Zone Routing** - Zone routing systems are most effective when there is high pick density or when you can eliminate the majority of the zones being visited. If you can't rely on product groupings, it is important that there be a reasonable number of picks in each zone to be visited (4 or more is preferred). If there are only a couple of picks in the zone, then the carton/tote scanning, location locating, and walking to and from the location becomes a substantial portion of the pick process. For this reason, zone routing systems may not be the best choice for small order environments, or in large SKU environments where orders tend to get cut up into many zones, with only a couple of picks in each zone.

**Small Order Transportation Alternatives** - One way to counter the problem of smaller orders is to increase the density of picks within each zone by batching orders together. With conveyor, this can be done by using a compartmentalized-tote that can hold several orders together. The problem

with having several compartments in one tote is that it may increase "put errors" since we have to depend on the picker to put not only to the right tote, but to the right compartment on the tote.

**Is Conveyor Best?** - A non-conveyor alternative is to consider a batch cart. Although this may not be intuitive, cart-based systems can sometimes be more efficient (even before doing a capital ROI analysis). The reason a cart is sometimes better, is that you can substantially cut walking. There are two ways to cut walking with a batch cart: 1) put 10 or more orders together on a single cart, picking to order or 2) create a "super-batch" where all requirements for all orders get picked to a single "grocery" cart. In the second option, the picked items are broken into individual orders on the back end.

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