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Value turns warehouses into distribution centers

The warehouse is not just for storing and picking product anymore. Value-added service requirements are turning the four-walled beast into an entirely new species right before our eyes.

By Maida Napolitano, Contributing Editor – Modern Materials Handling, 12/1/2007

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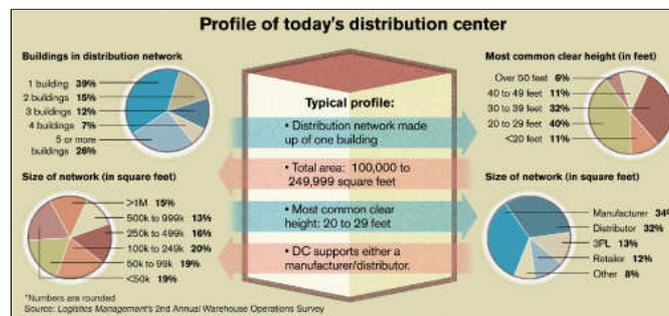
According to the results of *Logistics Management's 2nd Annual Warehouse Operations Survey*, the warehouse has certainly entered an evolutionary process. It is no longer a four-walled beast intended to store "mistakes" in forecasting—called inventory—but is now an entity morphing into a more appropriately named "distribution center" (DC) designed to better enable product flow, and to reduce—even eliminate—storage.

And it's still evolving. "Eighty percent of respondents are currently dealing with some form of value-added services (VAS) in their DCs," observes Don Derewecki, president of Gross & Associates (G&A), a logistics consulting firm based in Woodbridge, N.J., and *Logistics Management's* partner for the survey. VAS is a collection of specific requirements mandated by customers, involving additional processing of a product or an order, above and beyond the simple picking of the product for an order. The survey shows VAS is rapidly becoming the norm rather than exception. Case in point: WalMart is requiring RFID tags on supplier pallets; Home Depot and Lowe's are calling for special labels on their products; other mass merchandisers and groceries are demanding display-ready promotional packs. With the rise of VAS, small manufacturing cells are inevitably making their way into the layout of what were once pure storage and distribution operations. "To cope," adds Derewecki, "warehouse managers have been forced to adopt 'production tools' specifically in areas of workstation design and labor planning/balancing."

Derewecki adds that these VAS requirements have also been calling for more frequent shipments and in smaller quantities. "And it's these smaller quantities ordered by customers that have forced many distributors into piece-pick operations where they had previously been a carton-based pick," explains Geoff Sisko, G&A vice president of G&A and a member of our survey team. This year, almost 60% of survey respondents report having some form of "split-case" or piece-pick in their operation. Piece-picking adds an undeniable layer of complexity as it requires more labor and, in cases of high-throughput requirements, more complex equipment that yet again transforms the DC.

But these are just a couple operational changes propelling the warehouse/DC evolution. This year's survey, based on the responses of more than 750 *Logistics Management* readers (79 percent of whom are mid-level or upper level logistics and supply chain managers), uncovered even more illuminating details regarding today's distribution centers. Over the next few pages we'll describe what today's distribution center looks like, how operations are changing, expound on the importance of productivity rewards, assess the role of technology, dissect the impact of the green movement, and share how logistics professionals are preparing to meet future DC demands.

Today's DC



The typical distribution network would be made up of only one building, totaling about 100,000 to 249,999 square feet. The most common clear height (40%) would range from 20 to 29 feet. Some (32%) have even higher cube buildings with storage heights of 30 to 39 feet. Sisko predicts that the need to keep the footprint to a minimum will keep driving more DCs to this higher clear height.

Most facilities are still privately owned, with 34% servicing a manufacturer, 32% servicing a distributor, followed by 12% servicing a retailer. Thirteen percent of respondents reported being publicly owned and run by a third-party logistics provider (3PL). Most define their area of service as "global"—not just limited to servicing U.S. shipments. "Going global has created a higher demand to be near international logistics service providers, primarily ocean ports, airports and international freight consolidators," says Derewecki.

Distribution is still a labor-intensive function, employing more than 200 people in its operations. These personnel handle a mean of about 12,500 SKUs and a median of about 3,800 SKUs. This discrepancy between the mean and median clearly shows that a small number of companies have a very high number of SKUs, skewing the mean.

In general, most of these DCs report annual inventory turns of 3.0 to 5.9. Inventory turns are the number of times in a year inventory is "turned over," or converted to goods sold. They are largely dependent on the type of product being shipped. A closer look of turns by industry (page 58) shows how food and grocery predictably have the highest turns of 24 and over. Most respondents from the health care industry report inventory turns of 12 to 18; general merchandise hovers from around 6 to 12.

Dissecting the operation

Most survey respondents (69%) report receiving a combination of full pallet, full case, and broken case items into their warehouse. They also ship out in this same combination of full pallet, full case and broken case. Yet despite this most complex breakdown of units handled, only 20% employ any form of mechanization for picking and only 10% have mechanized receiving.

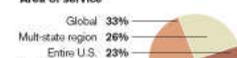
Most still handle these items conventionally, despite labor savings that could be gained by using conveyors for full case and broken case quantities. Full pallet quantities are still best handled conventionally using pallets jacks and lift trucks.

Typical distribution center by the numbers

Typical profile:

- Global Area of Service
- Total People Employed: Greater than 200
- No. of SKUs: About 3,800 (Median)
- Average Annual Inventory Turns: 3.0 to 5.9

Area of service



The most popular order filling technique employed by today's DC is still single-order picking at 79%—where a picker picks an entire order. Although increased efficiencies can be gained by batch picking, crossdocking and zone picking, less than 40% are employing these three picking methods.

Value-added services have a deep impact on DC operations. The figure below illustrates the types of VAS being performed according to popularity. Derewecki cautions, "These requirements need to be properly integrated into the overall DC operation to maximize productivity and throughput and to avoid bottlenecks."

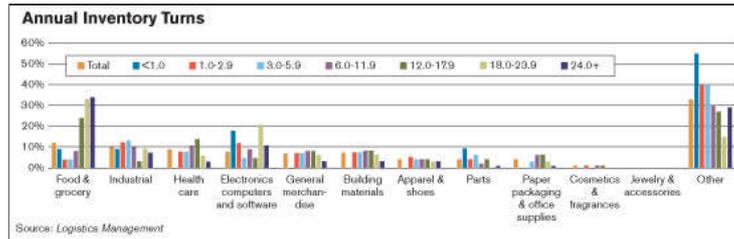
Measuring and rewarding

Although 5% of respondents say they don't measure productivity, the 55% that do seem to have embraced technology and are automatically collecting data through their WMS. The metrics most measured are "Orders Per Hour" (41%), followed closely by "Lines Per Hour" (37%) and "Cases Per Hour" (35%).

Many DCs (47%) fail to offer any incentives to their employees. "It takes work to develop incentive programs," says Sisko. "It must be developed to be fair to both the employee and employer, and there must be a good data collection process to properly credit the individual or team for the work being done. It's also more difficult in an environment where people are shifted around to different functions during the work day."

Some 34% do offer incentives to an entire staff. Sisko believes that these group incentives are more useful in the long term because "the group can identify the weakest links on its own, becoming more self-supervised."

What are the most popular types of incentives today? "Additional Pay" tops the list with 69%, followed closely by "Paid Time Off" with 22%.



Assessing technology's role

When it comes to technology, today's DC managers are in a holding pattern. The technology exists—we're just not sure when people are going to embrace and start using it.

Our survey finds that about 80% of respondents still receive and pick orders the conventional way with no form of automation or conveyors, while a whopping 61% are still paper-based with no bar coding, RF, voice, or light-directed technology.

"There are two factors: cost and fear of technology," says Sisko. "It's still difficult to develop an ROI for systems since the cost savings are hard to define; and most people don't have a good enough handle on the costs of correcting errors, locating "lost" inventory or other soft costs. These are the hardest ROI factors to project and yet are probably the best reasons for the investment."

Finally, Sisko adds that there's a fear of what it will take to get these systems in place. "This fear can be difficult to overcome, particularly for the small to mid-size privately held companies."

Last year, 23% had little or no WMS. This year the number has improved to 20%. Derewecki explains this slight improvement: "More companies have realized the benefits of having some form of WMS for achieving a higher level of control over their operations and reduced costs of operation." He adds that small, simple operations continue to get by for many years with minimal information systems support as long as they have well trained staffs and supervision.

Green's impact

This year, with Wal-Mart putting a spotlight on environmental issues within their distribution operations, we decided to ask managers what environmental initiatives their DC has implemented. A majority (54%) have turned to the use of lighting and fans to promote cooling, while 38% are using more environmentally-friendly lift trucks.

According to Sisko, "The use of electric trucks instead of internal combustion not only helps the internal environment, but it may also be more energy efficient when the overall energy requirement is evaluated."

An overwhelming 70% of respondents told us that they will be evaluating more environmental issues in the next 12 months, while 7% are not at all likely to pursue any "green" initiatives.

Future planning

What's ahead? Sisko still believes technologies—especially those that have been around a long time such as voice picking and RFID—will be moving ahead incrementally over the next few years. "As the technology evolves and the applications mature, there will be increasing cost benefits to every shipper," says Sisko.

Derewecki agrees, "Paperless direction and automated verification of material handling transactions should continue to gain traction."

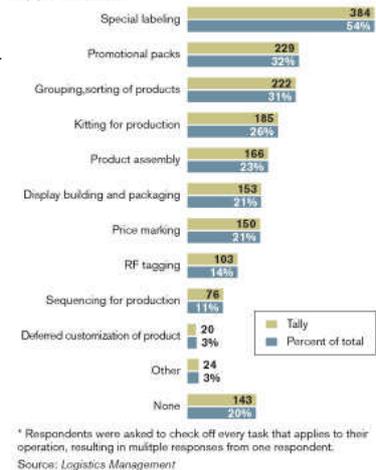
Additionally, we found that 61% of those planning to expand in the next 12 months said they would do so by adding more square footage. But Derewecki advises that managers should first determine how best to expand cubic storage capacity—not simply add more square feet. He also suggests outsourcing as an additional alternative for expansion.

Whether it's a physical expansion or adoption of new technology, it's clear that to remain flexible and cost effective in a highly competitive and unpredictable environment, the DC must continue to stay current on labor-saving mechanization and automation. It must continue to evolve.

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Type of VAS



* Respondents were asked to check off every task that applies to their operation, resulting in multiple responses from one respondent.
Source: Logistics Management



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