

WAREHOUSE:

The new big thing: super-size DCs

BY PATRICK BARNARD

There's a sizable trend going on in warehousing and fulfillment: Many companies are building or leasing giant, 500,000-plus-sq.-ft. distribution centers known as "mega DCs."

In the past few years WalMart built two 2-million-sq.-ft. DCs next to each other in Houston; Eddie Bauer opened a 2.2-million-sq.-ft. facility in Groveport, OH; and Macy's erected an 850,000-sq.-ft. DC in Minooka, IL.

Research by ProLogis, a third-party owner/operator of warehouse facilities, shows that DCs have grown from an average size of 173,592 sq. ft. in 1997 to an average of 308,034 sq. ft. in 2006. What's more, mega DCs are now more than 22% of the total DCs—whereas 10 years ago they represented only about 4.4%.

"More companies today are building and buying big warehouses than little ones," says Kate Vitasek, founder/managing partner of Supply Chain Visions, a consulting practice specializing in supply chain strategy (and which conducted the research for ProLogis).

What's the appeal of these larger facilities? Companies find that by consolidating their supply chains and taking a more centralized approach to fulfillment, they can speed service and gain operational efficiencies. Some are adding mega DCs to existing networks and closing some of their smaller facilities, while others are using one giant centralized facility instead of several.

Similarly, some merchants are using mega DCs to serve only their retail operations, while others are building them as direct-to-consumer fulfillment centers. Macy's, for example, built two 600,000-sq.-ft. mega DCs—one in Goodyear, AZ, in 2008, the other in Portland, TN, in 2007—to serve only its direct-to-consumer operations.

Consolidating networks

One of the main factors driving the mega DC trend is network consolidation. Companies are increasingly viewing

their networks as margin centers, rather than cost centers.

That means they're doing more intensive analysis of their operations and digging deeper to see where they can find efficiencies. As a result, those dealing in high volumes are discovering that it's more cost effective to have fewer, larger facilities, rather than numerous smaller ones.

"Simply put, it's economies of scale," says Craig Adkins, vice president of fulfillment operations for Zappos.com.

The online footwear merchant recently built a centralized, 830,000-sq.-ft. DC at its headquarters in Shepherdsville, KY. "If we split our DC up into a distributed network, it wouldn't be nearly as efficient—plus it



would be a lot more expensive to operate."

Adkins says with a larger DC, you can achieve higher throughput, which means you don't need to keep as much merchandise in stock. Once the items come in, it's typically a matter of days or weeks before they're shipped out the door. This reduces the operational cost of the facility, because you're using less floor space for warehousing.

With a distributed network, "we would have to replicate a lot of inventory that we don't have to replicate right now," he says. Zappos would have to carry more inventory to spread it across multiple facilities.

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**TECHNOLOGY
ENABLES GOODS
TO ZIP AROUND
IN ZAPPOS'
830,000-SQ.-
FT. MEGA DC.**

OPERATIONS & FULFILLMENT



HERE'S A MEGA DC FOR A MEGA MERCHANT: AMAZON.COM LEASES THIS 947,000-SQ.-FT. INDIANAPOLIS FACILITY FROM PROLOGIS.

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Leonard Sahling, vice president of research for ProLogis, says many mega DCs are designed to serve as cross-docking facilities, where containerized cargo comes in, is quickly broken down, sorted inside the facility, packed onto trucks and shipped off to stores.

Direct merchants are moving away from the idea of warehouses, Sahling says. "People don't hold goods—they bring them in, and they quickly send them out. So the idea is to locate these few large DCs strategically, so your trucks can reach whatever end-points you have."

Having a larger, centralized DC with high throughput has cost advantages from the standpoint of shipping. "The transportation part of supply chains is by far the most expensive—60% to 70% of the total cost," Sahling says.

"So the idea, then, is how to achieve efficiencies on the distribution side. And the best way, bar none, is to have full truckloads. The shipping rates are one-half to one-third of what they are for less-than-truckload," he says.

Having a large DC, he says, facilitates this idea of having full truckloads brought in and shipped out, often the same day. In some cases, if you strategically position one mega DC at a major port, you can get your goods to your customers just as fast, if not even faster, due to the inherent efficiencies of handling fulfillment in one facility.

"If we were spread out throughout the country, we would be regionally closer, but we would actually be no closer to the customer than we are now," Adkins says. The main reason Zappos.com located its facility in Shepherdsville was to be closer to the UPS World

Port. "If, for example, I had a building in Reno, and I wanted to serve my customers in California from there, I can actually get goods into Los Angeles faster from Louisville than I could from Nevada."

The technology factor

Thanks to technology, it's now almost as easy to manage a mega DC as a smaller facility. "In the old days, you couldn't physically be that big because it would be too brain numbing to manage—you just couldn't keep up," Vitasek says.

For example, a worker would have to go up and down the aisles and pick orders based on the pick ticket. "Well, that means in a big warehouse you'd be walking miles and miles," she says. "But today you have physical automation—conveyors, routing systems, AS/RS systems—that allow for the

fast movement of all the merchandise."

This results in efficiencies in labor: "As companies change their distribution networks and go from more small facilities to fewer larger facilities, and as they increasingly automate their facilities, the total workforce shrinks," Sahling says. "You end up needing fewer people to run one of these larger facilities."

One of the constraints companies used to have, in terms of the size of the facility, was just keeping track of where everything was, Sahling says. But with technology such as RFID, "companies are able to keep much more accurate track of where everything is. Without that, you would never see the large facilities that we're seeing today."

Some believe the mega DC trend is attributable to the shift in sourcing strategy—from a domestic to a global orientation, says John Hurst, vice president of warehouse management services for APL Logistics. "Today the sourcing patterns are less dispersed, they're more supply-based, and you have far more control of your partners in Asia in terms of flowing product into the U.S. market."

Hurst says companies tend to locate their mega DCs in close proximity to the major ocean ports because this gives them good decision making and analysis on postponements. It also helps them handle value-added services, such as specialized tracking, that may occur on arrival.

Bigger is not always better

Are there risks with going the mega-DC route? You bet.

"Insurance carriers get very nervous when the dollar value of the stored goods reaches a certain amount," explains Ken Ackerman, president and founder of K. B.

Ackerman Co., a logistics consultancy. Ackerman doesn't understand why so many companies are willing to take such a huge risk by having all of their merchandise under one roof. That's why he's a proponent of using the "campus style" approach to a mega DC—that is, having numerous medium-size buildings on a single site.

"The best fire protection is air—and by that I mean having space between two buildings," Ackerman says. "So if you have an extremely high value inventory in two buildings that are 20 feet apart, you can build a concrete runway between them if you have to run trucks or forklifts between the two."

Indeed, Adkins says, the risk of natural disaster is a concern for Zappos.com, "because if there were ever some sort of catastrophic event like a tornado, we'd be knocked out all at once."

"Right now, what I'm struggling with is at what point economically do I have to split, just from a risk mitigation and business continuity standpoint?" Adkins says.

Adkins is hoping that Zappos will grow beyond this building, "and we'll need to build another facility anyway. Whether I put it a mile away or across the street, I'm splitting my risk, but I can still realize efficiencies."

But Adkins also says most of the risks a company faces when operating a single, large DC can be mitigated.

For example, severe snow storms typically don't last very long—"you know they're going to plow the roads, so it's only a service disruption of about six hours," he says.

And if there's a major power outage, Zappos can get a flyway gas turbine generator on the site in less than four hours, Adkins says. "Even fire doesn't really concern me that much, because it's not highly flammable material to

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—Kate Vitasek, Supply Chain Visions

begin with, plus we have really good suppression."

Another risk: That mega DC you build today could be difficult to sell tomorrow, in the event you no longer need it.

"Years ago, Sears Roebuck built a 4-million-sq.-ft. mail order plant on the west side of Columbus, OH, and it's a real white elephant," Ackerman says. The hulking, two-level structure was custom-built, which is part of the reason it is still on the market today.

"It was a single-purpose building—Sears doesn't want it anymore and, apparently, nobody else does either," Ackerman says. "I'm sure when they built the thing, they figured they'd be in it for 50 years, and they didn't expect the downturn that they took."

Ackerman believes going the mega-DC route "is a matter of balancing insurance risk, resale risk and operational effectiveness."

"I'm willing to sacrifice operational effectiveness, to a degree, in order to cut the risk of fire loss, or the risk that I have to unload this building someday," he says.

Ackerman states that anyone who builds a mega distribution center should remember that few buildings spend their whole useful life with the same owner. "And if you build a white elephant, you're going to take a real beating," he adds. ●

