

Distribution Center Report: Sizing Up The Network

As companies merge, so do their distribution networks. Realigning them is a challenge.

By Alan Robinson



A number of acquisitions and a shift away from retailing had left Fleming Cos. top heavy with distribution centers.

So the Dallas-based grocery wholesaler set out to overhaul its distribution network. The result was a consolidation of 10 facilities over a period of two years, creating a network of 31 DCs, 22 full-line grocery facilities, six for general merchandise and specialty foods, and three for convenience stores.

Building a distribution network is a work-in-progress. Shortly after Fleming had restructured its network of DCs, it was awarded a contract to become the sole grocery supplier to 2,106 Kmart stores. Now Fleming is adding four DCs to handle the new Kmart business.

The need to continually assess a distribution network is a challenge faced by all food companies. As manufacturers shed brands, distributors bring on new accounts, and major retailers acquire smaller chains (and often each other), the size and function of a network, and individual DCs, must adapt.

Companies not impacted by consolidation often re-examine themselves, too, in an effort to make their supply chains more efficient and ultimately lower distribution costs. Reconfiguring a network is no easy task. An extensive review must be made of the entire network and each DC within the network.

A range of factors and related data needs to be sliced and diced, location, size, age, transportation access, proximity to customers, available labor pool, inbound goods, outbound goods, inventory volume, material handling equipment and IT systems. Some companies turn to facility planning and design firms. They do the measuring and quantitative analysis and crunching of data, and then make recommendations that eventually result in closing, expanding or building DCs.

“The first step is a network study that audits the existing infrastructure in terms of the number of DCs currently in operation and their size, physical constraints, building and site conditions, product lines handled, inventory levels and throughput,” says Keith Swiednicki, partner, KOM International, Montreal. “We look at it from a capacity standpoint and an operations standpoint.

“In this fact-finding stage, we go through all the facilities and get an appreciation of the capabilities from the operational side and from the physical side in order to evaluate the lifetime of all facilities in the network and to understand the growth potential and limitations,” says Swiednicki. “That’s the benchmark.”

The configuration of each facility is reviewed, layout, material handling systems, type of equipment and use of space. The result is “a report card on each facility’s existing capacity, its optimized capacity and the current operating costs in terms of cost per case, cost as a percent of sales and transportation costs,” he says.

“The location optimization process takes into account all the cost variables of inventory, capital for facilities and equipment, and transportation distance,” says Paul Evanko, managing principal, St. Onge Co., York, PA. “It locates the optimal number and geographic locations of facilities.”

The breadth and depth of data for optimization is beyond human calculation, so companies have turned to sophisticated software systems. “It’s not an easy equation by any stretch of the imagination. The modeling tools in these exercises are quite complex,” says Jeff Hjort, senior vice president, Keane Consulting Group, Denver (formerly Denver Management Group).

Off-the-shelf software is available, but the major consulting firms use tools from specialized firms, such as LogicTools, CAPS Logistics and Insight. Keane Consulting works with food manufacturers, and Hjort says Insight’s SAILS offers the flexibility to run a less complex tool that looks at the existing manufacturing and customer base and determines where to locate the DCs and which products to move through them.

“It can go to a more complex model that actually includes inbound manufacturing and outbound manufacturing,” says Hjort. “We’ve even been able to use the tool to drive annual production plans for companies if they wish, although that’s more of a strategic tool.” When all the data has been reviewed and analyzed, the actual decision-making process breaks down into four key areas: warehousing costs, inventory costs, capital costs and transportation costs.

Warehousing Costs

Location, age and the configuration of a facility are the most important factors in determining whether to keep or close a distribution center.

“A location optimization process takes into account all the cost variables of inventory, capital for facilities, and equipment and transportation distance, and locates the optimal number and geographic location of facilities,” says St. Onge’s Evanko.

The location is tied closely to a facility’s sales potential, says Jerry Nelson, executive vice president and president of food distribution, Nash Finch Co., Minneapolis.

“When we look at any individual DC, whether to close it, expand it, remodel it or move it someplace, it really depends on the sales potential there,” says Nelson. “That’s the key.” If a company is looking to do an expansion at a warehouse that’s bursting at the seams, the first thing to consider is the existing location, he says. “Is it located

within easy access to freeways and to the core customer base? If it is in the middle of the core base, then that’s the most efficient use of miles. Fewer miles traveled allow for shipping more product and offering better costs to the customer.”

Last year, for example, Nash Finch closed down a facility in Rocky Mount, NC, and expanded a DC in Lumberton, NC.

“Anytime you start weighing between warehouses and the sales potential that exists for each one, you certainly go to the largest facility that has the best location and is closest to your customer base,” says Nelson.

Doug Karmel, senior vice president, distribution, The Facility Group, Smyrna, GA, says software is available to determine “the total driving distance from any one particular DC’s location based off the amount of volume going to the different stores.

“It allows for optimization of the least total driving distance from any point to the stores themselves,” says Karmel.

Often the location is not a function of the hard data from a statistical analysis, but of “softer sorts of consideration,” says Evanko. “It might be just where people would rather live.” The age is important, but how a DC has been maintained is even more of a factor, says Nelson.

“The facilities can last a long time if the money has been put in for upkeep,” he says.

“There isn’t a number I can put against that in years, because it depends on so many things. Some facilities are worked harder because of their volume.”

The configuration is also important, layout, type of material handling systems, type of equipment and how space is used in the facility. “A company might have a facility with a variance in aisle ranges and racking that is not fully utilized in terms of cubing,” says KOM’s Swiednicki. “They will need to look at this from a practical layout perspective, how can they optimize that space to increase the capacity.”

Inventory Costs

Once the core structural components of a warehouse have been established, the cost to run inventory through it can be determined. “At the same time you are looking at configuration, you are looking at throughput,” says Swiednicki, “because when you start optimizing, at some point you make the switch over to operations.

“How is it operated, do they have the shortest pick path through the facility, are they storing inventory closest to the pick slot, are they batch picking, are they using the right numbering system, are they receiving the product in the right ti/hi?” he says.

Fleming greatly improved its average throughput costs when it consolidated DCs. “When we acquired Scrivner in 1995 it introduced a significant number of DCs into our network,” says Fleming spokesman Shane Boyd. “It was the same when we acquired

Malone and Hyde, and from other acquisitions through the years.

“We had multiple facilities covering the same geography or facilities lacking the volume to operate efficiently,” says Boyd, adding that Fleming’s volume per DC has increased from \$390 million in 1998 to \$550 million in 2000.

Fleming will expand its business with Kmart Corp., Troy, MI, from 800 stores to 2,106 stores this summer. The four additional DCs will be in Connecticut, Maryland and Indiana and one yet to be located in the Pacific Northwest. The new business with Kmart is expected to push average volume per DC up to \$635 million.

Ultimately, the decision may not come down to close or build a facility but to reassign its role in a distribution network. Nash Finch reconfigured its network to include a variety merchandise DC in Sioux Falls, SD, that supplements

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six grocery DCs in the region.

“The VMDC handles slow-movers and specialty items,” says Nash Finch’s Nelson. “Having a separate facility for slow-moving items makes us much more productive in our other facilities.

“Reducing inventories has been a big drive in the company and we’ve reduced them significantly,” says Nelson. “When you take the slow-movers and put them into one facility, then that one becomes a much faster moving facility.”

Capital Costs

At the onset of a network assessment, especially if it has brought together a number of facilities through a merger or acquisition, the initial impulse is to close a number of older facilities and replace them with a new DC. “Most people when they come to us say, ‘we’re open to virtually anything, we could build new,’” says Keane’s Hjort. “But when it really gets down to it, senior management is not as thrilled with having a monument as are some of the operators.

“CEOs are not excited about real big, big capital expenditures, new facilities or new locations, and then selling the existing ones,” he says. “So they look at the existing infrastructure and work within those parameters.”

Clearly defining the strategic goals and the differences between the head of operations and the head of the corporation can impact where and what gets built. Hjort recalls a CEO whose strategic vision of his company was to be a product innovator.

“They were trying to produce all kinds of products for the marketplace, and they were very successful marketers. But the COO was trying to produce a supply chain that was the lowest cost producer. The result was they couldn’t get the products out. “They were literally failing at both,” says Hjort.

Transportation Costs

When all is said and done within the DC, location, age, configuration and the costs to close or build new, the impact of what happens beyond the dock door must be worked into the equation.

“We’ve found that older facilities tend to be landlocked, cities have grown up around them and traffic can be a problem,” says Hjort.

“With companies that have a high density of outbound distribution, a city might have grown in the opposite direction of the facility. So now there are transportation costs associated with the old facility,” says Hjort. “It ends up as a trade-off, increased transportation costs vs. the capital costs of going into a new area.”

He relates the case of a yogurt manufacturer that decided to produce strawberry yogurt just one day of the week in an effort to maximize its production runs. “It made sense from a production standpoint,” says Hjort. “But we found, especially

with perishable products, that this was looked at in a vacuum and didn’t include the overall costs of the network, including inventory storage and product movement.

“The savings from long production runs and manufacturing may not offset the increased costs of the additional transportation and warehouse storage,” he says.

Fleming’s consolidation plan included building a new DC in the Chicago area to handle Clark Retail Enterprises Inc., Oakbrook, IL, a major convenience store account. It reconfigured a few DCs to handle both grocery and convenience stores while designating its general merchandise DCs for slow-moving products.

“Inbound consolidation DCs eliminate LTLs and cut the cost of goods,” says KOM’s Swiednicki. “Distributors can buy full truckloads and redistribute product built to their network. It’s efficient because multiple products can be mixed on a truck and sent to replenish the DCs.”

Growing Pains: Morningstar Reconfigures Its DCs

The old axiom is true: growth is good. But so is the corresponding one about growing pains. Acquisitions and internal growth helped double sales at Morningstar Foods Inc., Dallas, to \$850 million in four years, but it also created a distribution system with 48 distribution centers and overflow warehouses.

Morningstar is a national processor and distributor of shelf-stable and ultra-high temperature (UHT) dairy products, including coffee creamers, sour cream, and non-dairy creamers. The company had grown to the point where there wasn’t enough room to store product in the warehouses, so it had turned to public storage facilities to handle the inventory overflow.

“We grew very, very quickly,” says Bruce White, Morningstar’s vice president of logistics. “In doing so, we ended up with a distribution system that was by accident rather than purposeful.”

Morningstar turned to Keane Consulting Group, Denver, (formerly Denver Management Group) for a system-wide review of its distribution network.

All costs, product and location information were put into the model, along with data on transportation, warehousing, shuttles (between plant and distribution centers), all product groups, existing plants and warehouses, and potential warehouses.

“We looked at this in the current state and where we will be in three years,” says White. “We looked at all of our products by product group, and then we looked at our manufacturing capability against those product groups. So three years out, we can see exactly where we’ve got constraints in our system and where we need to put capital to improve production capacity.”

The criteria for the model came from both Morningstar and its customers.

“We began our process with a series of interviews with our customers and our internal management,” says White. “From this information, strategic directions were modeled such as locating warehouses closer to the customers to enhance their Efficient Consumer Response (ECR) programs.

“As we improve our network, we will expand some of our existing warehouses,” he says. “Our go forward solution has these warehouses racked and fitted with a warehouse

management system (WMS) along with bar code and scanning capability.”

The four DCs to be expanded are adjacent to Morningstar food plants in Fraser, NY; Mt. Crawford, VA; Sulphur Springs, TX; and City of Industry, CA. When completed, the Morningstar network will consist of 16 DCs. Ten will be adjacent to plants and six will be third-party logistics providers (3PLs).

Morningstar will move into 3PL facilities in Atlanta, Chicago and Orlando, FL, which will complement existing 3PLs in Indianapolis, Scranton, PA, and Tracey, CA.

“This will strategically locate us near our customers and allow them to use their fleets for backhaul purposes and to increase their inventory turns,” says White. , A.R.

What Color Is My DC?

When facility design engineers get together with food companies to assess distribution center networks, the language is more akin to saving rain forests than shipping and storing inventory.

Talk of “greenfields” and “brownfields” comes up when companies embark on the process of whether to retrofit an existing DC or build a new one.

Essentially, the decision on any DC is whether to keep it or scrap it and build new. That’s where the fields come into play. Brownfield is a piece of property that might have been used as a landfill or had some environmental damage in years past. It can also mean an older property. Greenfield connotes land that’s never been developed.

“Brownfield means taking a dirty site or tearing down an existing building and rebuilding on that site,” says Doug Karmel, senior vice president, distribution, The Facility Group, Smyrna, GA. “If a building is in the middle of a city, typically that’s a brownfield. Greenfield means taking down trees and making mountains into flat spaces to build on.”

The same key considerations in determining how many facilities should be in a network factor into the decision to build new or retrofit, location, age, transportation, inventory volume, proximity to customers and available capital.

“We look at a greenfield facility and determine its efficiency and its operation costs,” says Karmel. “Then we look at the existing facility and figure out the cost to expand. Then we compare the two.”

Older DCs tend to get closed while newer ones can be put to greater use through expansion, says Scot Driscoll, senior consultant, Tompkins Associates, Raleigh, NC. “If

companies can’t expand, they end up greenfielding some buildings,” he says. “But there isn’t a lot of greenfielding in the grocery industry today, companies are usually retrofitting.”

The result of so much consolidation in the food industry the last few years has resulted in an excess of distribution capacity, so there is little need to build.

Location can also impact a retrofit. “The East Coast has older buildings that don’t have the clear height to allow for more modern racking and equipment to expand their capacity,” says Driscoll. “But on the West Coast, there are buildings that have 38-foot clear and 42-foot clear, so taller racking systems can be installed,” he says.

That allows for narrow-aisle and wire-guide operations, which can expand capacity by 30 percent.

“There is no reason to move if they can do that,” says Driscoll. He notes that DCs on the East Coast are built along populous transportation corridors that have matured, while in the West, transportation corridors developed in later years, so the facilities built along them are newer and more modern.

Consolidations in previous years spurred companies to shutter older facilities and build larger DCs. So in this era of consolidating, “we have facility sizes that some years ago might have been thought of as too daunting, but are now considered quite feasible,” says Paul Evanko, managing principal. St. Onge Co., York, PA.

A decision to close also brings a decision to dispose. “With an old facility, there are also costs associated with tearing it down and finding a buyer for the building and the land,” says Evanko. , A.R.