

# Taking stock

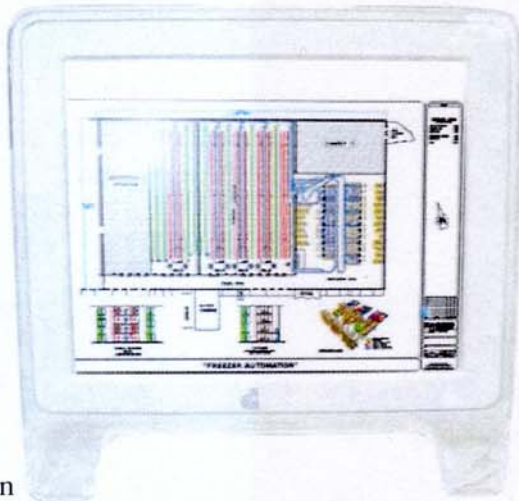
Warehouse and distribution center automation, as well as the finances and decisions that drive change, need careful consideration.

By Rex Davenport

Like nearly all other segments of business, technology has played a role in the way warehouses and distribution centers operate. Some of those technology-driven changes have been subtle — if not invisible — but many more have caused major shifts in both philosophy and execution.

The effect those changes have had, and will have, on food warehousing and distribution will be the topic of a presentation at the 2004 Productivity Convention & Exposition hosted by Food Marketing Institute/International Food Distribution Association (FMI/IFDA) in Dallas, Oct. 17 to 19. The presentation, "Taking Stock: Distribution Center Automation," is one of the featured "Super Sessions" at the conference.

Many companies are taking a second look at automated methods of receiving and selecting as a way of improving efficiencies. Marc Wulfraat and Keith Swiednicki, senior partners with KOM International Inc., a global leader in supply chain consulting, will lead the presentation. The men will provide an overview of developments in distribution center automation, an economic analysis of various forms of automation versus conventional product movement, and a perspective on future developments in distribution center automation.



Layout and design of frozen foods warehouses and distribution centers must take into account the changing dynamics of retailers and consumers.

According to Swiednicki, exploding SKU counts are driven by consumer demand for variety and freshness. Food companies are using increased delivery frequencies, smaller orders and faster order cycle times to keep costs low while meeting these increased consumer demands.

"There is an increased focus on freshness in fruits, vegetables and meat cooler items, which must be turned over quickly to maintain quality," Swiednicki explains.

He also notes that there is an increased demand for "organic" and "healthy" or "low-carb" products, which requires proper segmentation in the distribution center because contamination between product types is a consideration in the fruit and vegetable product variety.

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## News

Atlanta-based **AmeriCold Logistics** expected by October to re-start full operations in a section of its Atlanta warehouse damaged by fire in early August. According to newspaper and fire reports, an ammonia gas leak started the blaze, which damaged 60,000 sq. ft. of the 500,000-sq.-ft. building.

**General Mills Inc.**, Minneapolis, recognized **AmeriCold's** West Memphis, Tenn., warehouse as the processor's frozen "Facility of the Year." Among General Mills' frozen distribution centers, AmeriCold's West Memphis site received the most points for customer service, warehouse performance and cost control.

**Allied Cold Storage**, Southborough, Mass., opened its fifth facility, a 235,000-sq.-ft. distribution warehouse in Cranston, R.I.

**CFC Logistics**, Quakertown, Pa., expects to complete a 100,000-sq.-ft. addition to its public refrigerated warehouse in Quakertown this fall, bringing total facility size to 254,000 sq. ft.

## People

**FKI Logistex**, Cincinnati, named **Chuck Waddle** executive vice president, sales and systems engineering. **Ken Buzel** was appointed executive vice president, project management and installation. **Gary Cash** was named vice president, product management.

Truck body manufacturer **Supreme Corp.**, Woodburn, Ore., named **Douglas Thornhill** general manager of its Woodburn facility.

## FYI

**The International Institute of Ammonia Refrigeration** completed the first phase of its new "eLibrary." Regular and associate members may visit [www.iiar.org](http://www.iiar.org) for electronic copies of IAR bulletins, standards and the Ammonia Data Book.

## Decades of automation

**1970s and 1980s:** Automation in the '70s and '80s reduced materials-handling labor using machinery and sped up information flow using computer entry at point of receipt with printed instructions for product movement.

**1990s:** Automation in the '90s, and to date, streamlined the data capture, basically eliminating keypunching with scanning technology, and eliminated most paperwork with hand-held terminals, voice picking and pick-to-light displays.

**The future:** RFID will eliminate virtually all scanning labor, as well as automate the data mining activity to evaluate statistics at the most detailed level, and direct operations and management in fulfilling their responsibilities.

Source: KOM International

“Increased attention to maintaining the ‘cold chain’ sees many coolers re-introducing the 45° room in addition to the 55° and 35° wet and dry storage areas,” Swiednicki adds.

Whether it is a cause or an effect, significant improvements in the supply chain have occurred at the same time that warehouse operations

have moved into the new century.

“Companies are constantly reducing costs to remain competitive, while keeping an eye on further improving their responsiveness to customer demand,” says Swiednicki. “Supply chain improvement is a way for companies to keep increasing efficiency. This is one of

the last frontiers on which companies can compete to reduce cost and improve customer service levels.”

Supply chain execution demands a design that best facilitates speedy, timely, accurate delivery with an emphasis on the “perfect order.” This results in facilities designed for velocity, with higher-volume items located at the beginning of the order-picking path.

Adds Swiednicki: “For maximum efficiency, such a warehouse is re-slotted on an ongoing basis. Some operations may even look at the movement, cube and velocity of items and rearrange items on almost a weekly basis, cutting travel time and keeping productivity high.”

## Ordermatics and UPCs

Changes in thinking and technology have been non-stop for food industry

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## Perfecting the Process of Building for the Food Products Industry



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distribution centers, but the equipment has not evolved quite as far.

“In many ways the mechanical equipment we have today is not so much different from what we had available some 30 years ago,” says Swiednicki. “Counterbalanced fork trucks and reach trucks

remain the backbone of most storage applications. There have been innovations, such as the double deep truck, and some unsuccessful attempts at higher lift, but not much has changed in the conventional handling of pallet loads.”

It’s the operator-machine interface

and the technology that facilitates this interface that has changed most dramatically. In the early 1970s, an automated case-picking machine called the Ordermatic, and nicknamed “Big Blue,” was introduced. This remarkable device was basically a fully automated computer-controlled dispenser for full-case grocery product. The basic concept of this device was to receive full pallets into storage, direct them to mechanized stripping stations for machine loading, and transfer dispensed cases to the shipping dock for palletizing. Then non-machine picked product was merged and shipped to stores.

According to Swiednicki, the machines came with a sophisticated software package that controlled the reserve inventory and lane inventory by location, triggered replenishments to each lane in exact case quantity required and re-stocked the balances of replenishment pallets into appropriately sized slots for future access. Much of this logic and software was groundbreaking in the early 1970s and is an integral part of most modern WMS systems today.

“It is also important to note that there was a major facilitator for warehouse mechanization that was introduced about the same time as the Ordermatic,” he adds, “namely the Universal Product Code, which was born on April 3, 1973 when it was formally adopted by the North American grocery industry.

“Recent reports indicate that the food prices to the consumer would have risen twice as fast over the past 25 years,” he continues, “if it had not been for efficiencies realized with the UPC code.”

Today, store managers and merchandisers have more timely information and feedback regarding the results of their initiatives, including shelf positioning, price changes and aisle end displays, and they can adjust their strategy to maximize overall sales.

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## When should I consider automation?

According to KOM International's Keith Swiednicki and Marc Wulfraat, the general focus of their presentation will be on helping participants answer the question: "How do I determine if automation is worth considering — what are the triggers?"

**In the case of automation, the key criteria for consideration are:**

- Fully loaded labor costs approach \$30/hour for forklift labor
- Qualified labor is scarce
- Working conditions are "extreme" (freezer)
- A large number of SKUs are shipped in full pallets
- Land and utility costs are not prohibitive
- Capital is available; stacker cranes range from \$250K to \$350K (small to medium engine)

**But automation has its downside, as well, they note:**

- Automation requires a bigger building footprint, as much as 24 percent over a conventional rack and aisle layout
- The jury is still out on the maintenance, repair and service costs over time for a fully automated distribution center versus the labor costs in a more conventional distribution center
- The more automation you install, the less flexible the facility becomes
- Combining machines and labor augments safety concerns



*Editor's note: Keith Swiednicki is Partner at KOM International, responsible for the company's Food*

*Consulting Practice, as well as the firm's marketing efforts. He is a member of WERC, FDI, FMI, Canadian Material Handling Society and the Canadian Professional Logistics Institute. KOM International is a global leader in supply chain consulting. The company says it has worked with many of today's Fortune 500 companies across a wide spectrum of industry sectors to deliver world-class customer service levels at the lowest possible operating cost.*

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