Voice-directed picking at a Giant Eagle warehouse in Cleveland

CAN VOICE BE JUSTIFIED?

Distributors like Supervalu and Tony'sFine Foods are finding hard and soft benefits from costly voice-directed warehouse picking systems

By MICHAEL GARRY

In the 1970s, scanning emerged as a technology that could help cashiers increase their productivity, reduce errors, improve the ergonomics of the job and, ultimately, offer better customer service. The big issue—other than the culture shock of such a radical change in procedure—was the cost of the systems, especially the early models. Could the technology be costjustified?

Fast-forward to the 2000s and a similar scenario is being played out in food-distribution warehouses, only this time the technology—voice recognition—is helping employees improve the way they pick products off warehouse racks instead of moving them through the checkout lane But the effect is strikingly parallel: reduced errors, improved productivity, healthier ergonomics and better service to stores. The main question food distributors especially in challenging economic times, are again asking: Can we afford it?

Despite those concerns, as voice-recognition systems from a handful of vendors begin to be tested and rotted out at major distributors around the United States, the technology is gaining increasing interest in the food industry. Across industries, the demand for speech technology in the distribution center has grown by more than 50% annually over the past several years, according to a recent white paper, "Voice Technology in the Distribution Center," written by Marc Wulfraat, managing partner, Kom International, a supply chain consulting services firm based in Montreal.

At the 2002 Food Industry Productivity Convention & Exposition held last month in Atlanta, voice technology generated considerable buzz and was the focus of two major presentations: one involving Supervalu; the other, Tony's Fine Foods. The primary voice-system vendors - Vocollect, Voxware, Lucas Systems and OMI International - were positioned on the show floor.

Other food companies using speech-recognition technology in their DCs include Wal-Mart, Fleming, Kroger, Safeway, Giant Eagle, Roundy's, P&C Grocers, Price Chopper and K-VA-T Food Stores, according to Wulfraat. Associated Grocers of Baton Rouge is at the early stages of a voice implementation. (See next week's SN for a profile on the wholesaler's initiatives.)

Voice technology, which is able to translate text-based

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instructions into human speech, and vice versa, so far has been used in DCs mostly for picking orders for shipment to stores. However, voice technology can also be applied to other functions such as receiving, putaway and cycle counting.

At a DC, product pickers wear lightweight terminals on waistbelts along with a headset. Orders from a central warehouse management system communicate picking instructions via a radio frequency network to the terminals, which send voice instructions to the headset on where, what and how much to pick.

The picker then confirms his actions by speaking into the headset—location check-digit, product picked and quantity—communicating through the terminal back to the host system, typically in real-time but sometimes in batch mode. In the food business, systems are usually speaker-dependent, requiring each user to make a template of his or her voice that the system understands.

At the Productivity Show, Greg Heying, Supervalu's senior vice president, distribution, described in detail the cost savings gained at two Supervalu facilities through the use of a voice directed order selection system from Vocollect, Pittsburgh (see SN, Oct. 28, 2002, Page 59). At one of the facilities, in Fargo, N.D., where the system was installed in July 2001, he estimated the payback at one year.

"We're a very conservative company and require a significant justification," he said. "That was true here." The wholesaler plans to have the Vocollect system in all of its 28 DCs by the end Of 2003.

Another Productivity session showed a video on the impact of voice selection over a four-month period this year at Tony's Fine Foods, a deli and bakery distributor with a 125,000-square-foot distribution center in West Sacramento, Calif.

Ron Selders, director of operations for Tony's, said in the video that while Tony's hasn't calculated the financial ROI on its voice selection investment, the "soft" returns derived from increased customer satisfaction and better employee morale "go beyond the ROL" Tony's uses voice software from Lucas Systems, Wexford, Pa., which employs a "human" female voice named "Jennifer," in concert with hardware from Vocollect.

The key driver behind Supervalu's justification of its system was the measurable improvement in picking accuracy—in preventing both mispicks and shortages said Heying. The Fargo DC reduced mis-picks by 80%, resulting in an annualized cost savings Of $302,860.

Selders said that mis-picks at Tony's were reduced by 170%. "Drivers see a lot less mis-picks on the trucks," said Selders. "Sales reps are not writing up as many credits. And we're getting good feedback from customers."

The other big win generated by voice systems at Supervalu and Tony's was in productivity gains. At Fargo, Supervalu achieved a 6.54% reduction in selection hours, equating to an annualized savings of $149,677, said Heying. Tony's, which wasn't expecting an increase in productivity, got one anyway to the tune of 10.8%.

Productivity improvements from voice picking can take different forms. At Tony's, "our trucks get out earlier and our labor expenses are down," said Selders. In addition, picking of perishable product, which represents a large part of Tony's business, had required manual entry of catch weights, a process the voice system has automated, improving both productivity and accuracy. Tony's has also been able to eliminate two order-checker jobs, since far less auditing is required of a voice system.

At Supervalu, voice has allowed pickers to be trained more easily and get their instructions more readily, said Heying. He also noted the productivity gains that come from "hands-free picking" and the reduction, if not elimination, of paper ticket or label handling.

The question of whether traditional pick tickets or labels should be dispensed with in voice-selection draws mixed opinions from food distributors. Supervalu is all for it, and Heying noted an annualized $12,000 savings at Fargo from their elimination. But Tony's and other distributors keep the labels, though they don't really need them internally, for customer service reasons - their retailers or drivers still find them beneficial.

Even Heying acknowledged that some of Supervalu's retail customers, particularly in states that still require item pricing like Massachusetts and Michigan, balked at the wholesaler's decision to get rid of the labels. For those retailers, he said, Supervalu tries to get them to price items in the store aisles off shelf tags instead of the traditional back-room pricing of the case labels.

Another significant issue mentioned by Selders was the initial voice training of pickers. Most voice systems used in food distribution are voice-dependent, requiring the system to become familiar with a picker's unique speaking voice. "People have different ways of speaking when at rest vs. when picking," he explained. "So we put pickers in a work environment, making them pick up boxes and then do the training. That made the problem diminish."

Cost of Voice Technology

Kom International, Montreal, a supply chain consulting services firm, provides the following cost estimates for the installation of voice-selection technology at a hypothetical 600,000-squarefoot distribution center with a maximum of 75 concurrent order pickers per shift:

- Wireless terminals ($6,000 per unit): $450,000
- Software interface to WMS: $30,000
- RF Network: $65,000
- Training/implementation/customization:30,000-$100,000
- 10% contingency: $58,000-$65,000
- Total: $633,000-$710,000