

June 2005

## **equipment&applications**

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### *sonic boom*

## **VOICE RECOGNITION**

**A scant three years ago, voice technology vendors questioned whether they'd be able to wean order pickers from their paper lists, keypads and touch screens. Now their biggest problem is keeping up with a double-digit surge in demand.**

HE WAS ROUSTED FROM HIS BED AT unthinkable hours and chased through New York's streets by an oversized bagel. But whenever he rose before dawn muttering "Time to make the doughnuts," Dunkin' Donuts pitchman Fred the Baker had at least one advantage over his real-life counterparts: He never had to worry about his supplies. With all the indignities he suffered during the 15-year ad campaign, Fred could at least rest assured that the ingredients for making the doughnuts—the flour, the glaze, the yeast—would be on hand when he needed them. The people who actually worked in the franchises at the time weren't always so lucky. For them, ingredient supplies were sometimes a source of concern.

The people who actually worked in the franchises at the time weren't always so lucky. For them, ingredient supplies sometimes represented a source of concern. Up until about a year ago, the Dunkin' Donuts supply chain still contained a few, well, holes. As its franchise base swelled over the years, the company outgrew the distribution center that served the 1,536 Dunkin' Donuts shops on the Eastern seaboard. The facility's aisles grew more and more cramped, and workers carrying clipboards tripped over one another as they scurried to fill orders for bags of flour and cases of muffin mix.

Today that's all changed. Last year, the operation moved to a more spacious facility—its new 300,000-square-foot Mid Atlantic Distribution Center (MADC) in New Jersey. And in August, Dunkin' Donuts announced that it was installing voice-recognition technology from Voxware to streamline the order picking process. No longer encumbered by clipboards, workers now swarm all over the facility wearing belt-mounted computers and headsets through which they receive (and respond to) picking instructions. Fred the Baker has long since retired, but the workers still hear voices in their headsets telling them it's time—not to make the doughnuts, but to pick a 50-pound bag of flour, or a case of glaze, or a box of coffee beans.

The voice system's installation represented the culmination of a three-year dream for Warren Engard, the DC's director of operations. Over the years, Engard, who has described the Dunkin' Donuts DCs as "starving for technology," had tirelessly campaigned for new equipment, though not necessarily for voice technology. Initially, he considered a hands-free scanning option, but he was scared off by reports about the durability of arm-mounted scanning devices. Then, three years ago, he saw a voice system at a trade show—a hands-free system that promised higher accuracy and improved throughput. But as tempting as it was, he couldn't bring himself to commit to a new, unproven technology right away. "At the time it was considered bleeding edge," says Engard.

But today, just 36 months later, it's a different story. Engard is now using voice technology in his DC and is more than eager to describe the benefits. Ask him about productivity and you'll get an earful: "In the first week of running the new system, I had workers telling me that I'd have to increase their work load," he says. And it wasn't just the top performers. Within two weeks of the system's installation, even the slowest worker—a picker whose 110-cases-per-hour pace had put his job at risk—was consistently exceeding the DC's 200 cases-per-hour goal by 10 cases. The most impressive gains have come from the freezer area, where, under the old paper-based picking system, workers spent up to 20 minutes planning how best to build a pallet. Today, Engard says, the voice system automatically configures the proper picking sequence in seconds.

Accuracy rates have soared too. Prior to the voice system's installation, the DC employed eight people whose sole job was to check outgoing shipments. Today, picking accuracy has reached 99.9 percent, with just one part-time quality checker.

That boost in accuracy wasn't exactly unexpected; Engard went into the project assuming that's where most of the benefits would lie. When he first pitched voice to management, in fact, he calculated the return on investment on the assumption that he'd be able to reassign those eight checkers. Though he suspected productivity would improve, he didn't attempt to quantify the gains. So it was an unexpected bonus to learn that the actual productivity gains would cut the ROI he had projected at one year to just nine months. Not bad for a technology the company had dismissed as immature a short time ago.

### **Turn up the volume!**

In many ways, Dunkin' Donuts' journey from skeptic to convert typifies what's happened in the voice technology market at large over the past three years. Today, voice technology is no longer viewed as experimental; it's a proven solution, says Don Lazzari, director of marketing at Pittsburgh-based Vocollect. "It has become very clear that people realize voice ... can deliver benefits far beyond other technologies available," he says. "It's become clear from an industrial engineering standpoint that you can do things much quicker using voice compared to looking at a screen or working off a paper list of some kind."

It would be easy to dismiss that as marketing hype if the numbers didn't bear him out. Voxware, which installed the Dunkin' Donuts system, reported revenues of \$11.2 million in FY 2004, but those revenues are growing at a 60-percent clip. Industry leader Vocollect saw its sales swell to more than \$80 million in 2004 from \$45 million in 2003.

That growth appears to be coming at the expense of older technologies. Like Dunkin' Donuts, many of the companies that have installed voice systems started out looking at pick-to-light or mobile scanning. Take Navarre Corp., a distributor of home entertainment PC software, video games, music and DVDs. When the company redesigned its Minneapolis distribution center, initial plans called for installation of a pick-to-light system. Voice wasn't even under consideration.

A detailed review of its operations changed all that. In the end, Navarre went with a Vocollect system installed by ASAP Automation. What prompted Navarre to change its plans midstream was the realization that above all else, it needed a technology that could accommodate wild swings in demand, explains Dave Ginsberg, Navarre's vice president of operations. In the home entertainment business, he says, it's not unusual to ship 100,000 copies of a DVD on the day it's released to stores, but only a few hundred the next day. Voice gives us lots of flexibility in terms of putting people in picking areas that are busy on a particular day," he explains, whereas with other technologies it's not as easy to absorb large volume in an isolated area."

### **New things to talk about**

As industry grows accustomed to voice, some of the leaders are beginning to experiment with new types of applications. Some are expanding their voice-directed picking operations beyond full case picking into split case picking, a potential sweet spot for voice technology.

Others are using it to help short runners—the people who pick shorted items at the end of a shift—work more efficiently. In many DCs, a warehouse management system (WMS) keeps track of products that were short during the picking process. Once those items have been replenished, pickers are sent out to pick all the items shorted on that shift. When tied into the WMS, a voice system can direct a single picker to gather all the items and then provide information regarding which pallets are still incomplete and the dock doors where they can be found.

Others have been more adventuresome. Pharmaceutical distributor Cardinal Health, for one, is already using voice technology for receiving, putaway and replenishment in addition to picking. Wal-Mart is currently engaged in a pilot that uses voice technology in crossdocking; others are using it for checking in returned products and recording their condition. Most of our customers unveil voice for their picking applications, because that's where the biggest bang for their buck is initially," says Steve Gerrard, vice president of marketing at Voxware. But we're starting to see the early adapters expand to other applications beyond picking."