

Keeping Track of Kids' Clothes



Carter's delivers quick turns with real-time data in the distribution center

The William Carter Company has been making kids' clothing since 1870. This industry leader is one of the few vertically integrated manufacturers of children's apparel in the country—knitting, dyeing, cutting, sewing, finishing, and delivering to demanding retailers including Sears, JCPenney, Mervyn's, and Dayton Hudson, as well as 140 of Carter's own outlets. With more than 15 manufacturing facilities in the United States and offshore, Carter's manages distribution of finished goods through two distribution centers in its home state of Georgia.

Today, major U.S. retailers, operating in an increasingly competitive market with narrowing margins, need to carry less inventory and require quicker response times from their suppliers. In addition, they demand "floor-ready" merchandise delivered "store-direct"—that is, ready for sale on the appropriate hangers with custom labels, size tabs, and stickers, all prepared by the manufacturer to meet the specific requirements of each store.

"We have 24 to 48 hours to turn goods with floor-ready prep," explains Dan Castiglione, project manager for distribution and customer service at Carter's. "When I started out in retail almost 30 years ago, replenishment of an order coming from offshore took as many as 3 to 4 months. Standard domestic replenishment was as long as 16 weeks. In today's business environment, our customers want a finished product in their store within 24 hours of when they give us the order. To do that, we meet the challenge with technology. We were able to give tools to our people in the distribution centers that have moved them from the Stone Age to the twentieth century. Productivity has increased as much as 50 percent."

The Fine Art of Keeping Track

To manage the workload efficiently, Carter's has built an extensive real-time distribution management system based on wireless portable data collection hardware from Intermec Technologies Corporation and sophisticated distribution control software custom engineered by FoxFire Technologies Corporation.

Carter's tools quickly and accurately capture each inventory transaction as goods move through its dis-

tribution centers, updating order status by location in real time. Radio frequency (RF) data collection helps Carter's track finished goods from the time the products leave the manufacturing sites to the time they're delivered to the customer.

"Our business challenge is to synchronize the movement of our finished goods and data both within Carter's and to our customers," says Castiglione, "tracking product down to the individual color and size level. So no matter where you stand within the supply chain, you know the status of each order and all the data behind it."

With help from Intermec value-added reseller (VAR) FoxFire Technologies' warehouse management system (WMS) software, Carter's has been honing its use of RF data collection technology for over ten years, and its distribution system software has evolved as well.

"We've upgraded our product to Windows® and we've greatly enhanced our distribution warehouse management system to handle floor-ready prep," says John Henderson, president of FoxFire. Using rules-based processing, the FoxFire system assigns a specific routing through the distribution center for each order.

"We combined our real-time shop floor system with our real-time distribution system and morphed the two into a more powerful warehouse management system," Henderson explains. "This system handles the batching, routing, and tracking of work from one end of the distribution center to the other. And it includes all the productivity reporting for each and every operation in the warehouse. Not only do we direct activities, but we're also able to measure productivity, allowing Carter's to better plan and execute work."



Symphony in RFDC

As sales orders are updated throughout the day, new pick tickets are printed on-demand with Intermec 4400 and 4420 printers in the warehouse. Carter's uses Intermec Janus® 2020 portable scanners and vehicle mounted units throughout Carter's two distribution centers. Each employee scans his or her bar code ID badge to log on and receive a

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job. When workers complete a batch or pick ticket, they scan their ID card again, and the transaction updates the order status on the system in real time.

The FoxFire Distribution Center Control System provides each worker with the highest priority and most appropriate task for his or her job function, then keeps a detailed log of each activity and every transaction. To optimize productivity, the software sequences the activities and routes the jobs so workers travel the shortest distances and carry the fullest loads. "Every time they go to a new operation, they scan their badge and pick ticket," says Castiglione. "So we know, at any given time, where a group of pick tickets is, who has touched it, and how long they have had it."

Castiglione compares designing and implementing the radio frequency distribution control system to writing and conducting a symphony. "The pick tickets are sheet music, and the scanners are instruments. We've orchestrated the symphony so it sounds like Beethoven's Fifth, even though it reads like Mary Had a Little Lamb to each of the musicians."

"It's our responsibility to move that data throughout the distribution center so everyone knows where the merchandise is at any given point in the process," Castiglione explains. "We're able to give an instantaneous report on the status of any order to our internal client or to our customer. And we follow that order through its delivery all the way to the consignee's receiving area."

New Music

"Today we're moving 30 percent more cases than we did four years ago, and we're moving data anywhere from 30 to 40 times faster," says Castiglione. "In the

RF arena, we are planning to upgrade from our existing 900 MHz system to Intermec's newer 2.4 GHz equipment so we can move more data quicker."

The increase in RF bandwidth will allow Carter's to move more data without adding more wires. In fact, many of the pack stations that operate today from hardwired PCs with attached scanners can become totally portable and wireless, creating new economies for Carter's.

"We used to have 13 pack stations with less than 20 RF scanners. Now we can utilize up to 30 pack stations running simultaneously with as many as 60 RF devices," says Castiglione.

"That will save us considerable wiring cost. It also gives the distribution center the flexibility to move the peripherals [wireless scanners, portable computers, and printers] from one location to another as business demands shift from season to season." In Carter's warehouse, summer playwear may be packed on one floor and winter sleepwear packed on another. "We feel we can go totally wireless with all of our systems, including our

PCs, using the Intermec technology."

Carter's has been pilot testing Intermec 2.4 GHz portable computers in one of its cutting mills and is pleased with the results. Castiglione appreciates the fact that the new portable devices can run on the Microsoft® Windows® CE operating system and both hardware and software can be upgraded over time. "The service life of these peripherals will be longer due to the fact that we can upgrade the software and the peripherals. It's also a TCP/IP data collector, so it's interchangeable with other nodes on the LAN. The capital expenditure is less and the service life of the peripheral is longer." ■



Presenting A New Image

2-d bar code speeds delivery
and promises to cut costs

If traditional radio frequency data collection plays “like a symphony” for Dan Castiglione in Carter’s distribution centers, experiments with two-dimensional bar code for some of Carter’s freight carriers may really start to rock and roll.

The William Carter Company and FoxFire Technologies are part of a national pilot program migrating from a conventional bill of lading using standard bar code symbology to a Portable Data File (PDF417) using a two-dimensional (2-d) bar code that carries much more data in about the same space.

2-d bar code on the bill of lading and get all the data needed to receive and process that shipment—again, without having to manually enter any data.

Two of Carter’s carriers are currently equipped to participate in the pilot. One freight line has RF scanners on its trailers and can transmit the data back to its hub via satellite. Before the truck gets to its hub to unload, the carrier can calculate where every carton is supposed to go at the freight station.

Castiglione envisions utilizing 2-d bar code for many standard shipping documents. “We could put

The total estimated savings in data entry, speed of delivery, and improved accuracy amounts to about \$1 per bill of lading between the consignee and the carrier.

“Multiply that by the amount of documentation sent throughout the world—we’re talking about hundreds of MILLIONS OF DOLLARS SAVED within the supply chain.”

While a traditional one-dimensional bar code can carry 10 to 12 bytes of data, a high-density, 2-d bar code carries thousands of bytes—enough to include all the detailed documentation of a complete bill of lading and more.

In the pilot program, all the data normally printed in human-readable form on a standard bill of lading is also compressed into a 2-d bar code. When the motor carrier receives the bill of lading, the 2-d bar code can be scanned in with a portable scanner to instantly create an advanced shipping notice specifying exactly what is in the carrier’s cargo. This saves an enormous amount of data entry for the carrier, who would otherwise manually re-key the information. And when the goods are received, the consignee can scan the

hard copy documents onto a bar code label printed on one of our Intermec 4420s for example. The whole document, which is very large and would usually be sent electronically, can now travel with the merchandise throughout the supply chain. When it’s scanned, all the data can be retrieved within seconds.”

“The overriding philosophy holds that data should be maintained where it’s needed and used the most,” says Castiglione. “2-d code allows data to be synchronized with finished goods throughout the supply chain. All parties benefit when the data and the product flow through faster.” ■