Mobility has arrived

Mobile and wireless technology is making a measurable impact on today’s warehouse & DC operations. Savvy users are going multi-modal, pulling multiple technologies and software capabilities together to increase productivity, cut pick-rate errors, and increase inventory accuracy.

BY MAIDA NAPOLITANO, CONTRIBUTING EDITOR

For a number of years now, mobile computing devices have been electronically capturing data on assets and resources and uploading them to host systems over wireless networks. But thanks to the raging successes of smartphones and tablets, as well as the rise of much improved wireless networks, mobility solutions for logistics management are reaching new levels of ubiquity.

“You’re not going to see any large warehouse or distribution center today operating without these types of technologies,” says David Krebs, vice president of mobile and wireless practice for VDC Research, a market research and consulting firm. “It’s too important and the benefits are too great for an organization not to make these investments.”

A survey of mobility end-users recently conducted by VDC highlights the top three benefits achieved by today’s enterprise mobility solutions: (1) improved real-time decision making; (2) increased mobile worker productivity; and (3) improved inventory accuracy.

Bruce Stubbs, director of industry marketing for Intermec, says the VDC findings certainly match up with what he’s seeing from his customers. “Logistics professionals want access to accurate information and data, and they want to be able to proactively act upon it,” says Stubbs. “The faster you get information that is actionable, the quicker you move a step ahead of your competition.”

Mike Maris, senior director for transportation, distribution, and logistics for Motorola Solutions points out that by scanning bar codes, paper is eliminated. “It also eliminates the errors and delays associated with a paper-based operation,” adds Maris. “This improves accuracy, adds efficiency, and improves the speed of how you do business.”

With these benefits in mind, let’s explore current trends in mobile technologies and how today’s vendors and solution providers are helping logistics professionals put them to work inside the nation’s warehouses and DCs. Then let’s examine how a Canadian distributor of building and hardware materials made its real-life transition to mobility solutions, causing pick-rate accuracies to skyrocket while giving its customers real-time visibility into the status of their orders.

TRENDS IN MOBILITY

Mobile technologies have been rapidly evolving over the past few years. Rugged mobile computing devices—which, according to VDC, account for 88 percent of total mobile hardware used in the DC—are getting lighter and more ergonomic with better touch-screen user interfaces.

One clear trend has been the convergence within one device of multiple data capture technologies from bar code scanning to voice input to RFID. Workers have been going to multi-modal scanning bar codes for receiving while using voice for picking and RFID for loading completed pallets onto trucks.

Today’s devices are also able to connect and automatically switch to multiple network infrastructures from wireless local area networks (such as Wi-Fi) for operations within the DC, then switch over to wireless wide area networks (such as 3G, 4G/LTE) for operations beyond the DC into a retailer’s stores—without missing a beat. Some are equipped with Bluetooth connectivity for wireless printing and advanced GPS capabilities.

In response to the iPad, Motorola’s even got a new rugged, industrial grade tablet—the ET1 Enterprise—a tablet so advanced it realizes when it’s being dropped (via built-in sensors), according to Motorola’s Maris. “It actually shuts down in nanoseconds to protect itself,” he says. Although geared toward more enterprise applications, he can see the ET1 being used on receiving docks because it’s equipped with a camera that can capture and send images of the condition of inbound merchandise to trading partners in real-time mode.
Finally, emerging supply chain execution software providers continue to integrate manufacturing, warehouse management systems (WMS), and transportation management systems (TMS). They’re now leveraging Cloud technology as a common collection area for data shared among trading partners. “It’s taking information and putting it into a readable format that the next partner can use,” explains Maris. This integration and ability to easily share real-time information are allowing enterprises to quickly address problems as soon as they arise, seamlessly collaborate with trading partners, and basically revolutionize supply chain management.

MAKING MOBILITY AFFORDABLE
Despite these proven benefits and technological advancements, many small- to medium-sized companies are still hesitant to adopt mobility. Many are concerned that they can’t handle the complexity of deployment—or the cost. But, according to VDC’s Krebs, that’s not necessarily the whole truth. He reports that small organizations are achieving deployment timeframes of 45 days or less, with many realizing ROIs of six months to 18 months.

Maris believes that the cost of software is what’s keeping mobility out of reach for smaller firms. For them, he suggests looking into software as a service (SaaS) in an effort to get over the cost hurdle. “SaaS allows you to buy that software application for one user at a time,” he says. “If I have a smaller warehouse with only 10 people, I can afford to have a WMS that’s as good as somebody with a thousand people.”

Along the same line, Intermec is now offering “hardware as a service.” “Users can actually lease the equipment annually, making it more of an operating versus a capital expense,” explains Stubbs. Last year, Intermec expanded this program by allowing customers to lease the devices on a short-term lease of a few months—just to get them through their peak season.

With 25 full-time employees, Independent Retail Lumber Yards (IRLY) Distributors is a perfect example of a small organization that’s made the leap into a completely mobile solution. Not only did they come out on top, they came out swinging, reducing pick error rates by 50 percent while increasing productivity by over 30 percent. Here’s how they did it.

IRLY DISTRIBUTORS MOBILIZES ITS OPERATION
IRLY Distributors is a co-op group of independent hardware and building materials retailers based in Surrey, British Columbia. This Canadian owned-and-operated company distributes 17,000 SKUs consisting of lumber, hardware, and building materials to 44 of its own retail stores and to over 250 customer locations throughout British Columbia and Western Canada.

IRLY had long been using paper-based methods to receive, store, pick, and ship merchandise in its eight-acre distribution campus that includes 105,000 square feet of covered rack storage and another 45,000 square feet of partially covered, shed-type space, they call their “yard.”
When she started with the company in 2008, Susan Robinson, IRLY’s president and CEO, recalls how she personally visited with the then 36 member retailers to get their feedback on how the DC was performing. It wasn’t good news.

“Error rates were high and the ability to trace an order was low,” says Robinson. “When our customers would call to check on the status of their orders, nobody could really tell them.” As a result, sales people weren’t making sales calls. They were too busy putting out fires and becoming an error corrections center. Customers were frustrated, and a few were actually taking their business elsewhere. And to top it all off, the economy was heading into a recession.

But Robinson remained undaunted. She gathered her team and recognized an opportunity. “We had good people who had been with us an average of 22 years, and we had systems in place that were capable of being improved,” she says. With winter approaching and sales entering its slow season, there was no better time to improve IRLY’s operation and significantly reduce their error rates.

IRLY had been working out of its ERP system for order fulfillment and to track inventory with some enhancements, but it was not nearly as robust as what a real WMS could give them. After some due diligence and checking into which systems their other trading partners were using, IRLY made the decision to purchase a WMS known for automating warehouse and distribution operations with real-time inventory information from Washington-based PathGuide Technologies.

The team then evaluated rugged handheld computers, setting up several stations with competitive equipment and asking employees to try each device and provide their feedback on which mobile computer they preferred. After recording and tabulating their feedback, the team selected Intermec’s CK3 mobile computers and PM4i label printers in early 2009. After just six months, a fully mobile, wireless, and paperless DC was up and running.

How does it work? At IRLY’s stores, store associates scan the shelf location associated with the product that needs replenishment and immediately downloads these orders to IRLY’s system. Today, about 72 percent of all IRLY’s store orders are received electronically this way.

Pickers then start scanning and picking products onto carts or pallets from three major zones: the high picks, the low picks, and the yard. In the yard, they may pick directly onto the deck of a truck or trailer. Next, pickers unload completed orders to a shipping box on the dock or directly into a waiting truck. At every step along the way the order is scanned, giving IRLY full visibility from receiving to shipping.

IRLY’s trucking company then physically transports all completed orders to its stores. By the end of 2012, it plans to implement its own mobile tracking system so that drivers can capture an electronic signature with an arrival and departure time. “My dream would be that one day these two systems would be in alignment,” says Robinson. “We want the customer to be able to go to one place, track their order and see the entire transaction from beginning to end.”

At the store’s receiving dock, workers scan each product into the store’s receiving system, automatically updating the store’s inventory.

Due to the new accuracy, in the past year 10 percent of its stores dropped their receiving procedure, loading inbound merchandise directly to store shelves. Now, IRLY sends detailed shipping information to them, so all the stores have to do is hit “receive.” Their inventory is updated, and the product becomes available for sale the minute it hits the dock.

It’s been three years since the system launched, and the benefits have been rolling. Productivity per labor hour has increased from 22 lines per hour to 30 lines per hour; pick error rates have come down by over 50 percent; and inventory accuracy increased from 85 percent to plus 95 percent. And, according to Robinson, the return on the investment was a mere 18 months.

While the building supply industry in Canada declined 10 percent in 2009, IRLY’s business grew by 15 percent in 2009 and another 15 percent in 2010. According to Robinson, sales people are finally selling instead of putting out fires and customers are calling to plan new programs. “We used to spend a lot of time talking about errors that have happened in the past,” says Robinson.

“Now we’re spending our time looking at ways to improve in the future. That’s a big change.”

—Maida Napolitano, Contributing Editor to Logistics Management

The smartphone or the rugged handheld?

THE SUCCESS AND RELATIVE AFFORDABILITY of smartphones have many wondering whether they can use the device on the warehouse floor.

For now, our experts advise against it and suggest limiting the applications of smartphones to supervisory level employees.

“Tablets and smartphones aren’t very rugged at this point,” says Intermec’s Bruce Stubbs. “When dropped repeatedly from eight feet to concrete, smartphones are going to break and will need to be replaced, thus increasing the total cost of ownership.” There are also concerns about the smartphone’s functionality in wet or extreme temperature environments, adequate battery life, and theft—because workers can easily use the device outside the DC.

However, there have been some recent successes with commercial (non-rugged) VoIP phones as a more cost-effective method to deploy voice for order picking. “But it’s currently not robust enough, and you can’t do any scanning or any manual data key input,” says VDC Research’s David Krebs.

So what’s the device of choice for operations within the DC? According to VDC’s latest research report 2011 Enterprise Mobility Solutions Market Intelligence Service, 8th ed.: Transportation & Warehousing, rugged computing solutions represent “88 percent of total hardware deployed to support warehouse and DC-related workflows.” These are equipped with automatic identification and data capture (AIDC) capabilities and can be handheld, forklift-mounted, or wearable.

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