When the athletic footwear maker flipped the switch on its 520,000-square-foot paperless DC it completely transformed the way it processed orders. Today its mobile equipment affords real-time inventory management, improved communication among floor supervisors, and new efficiencies in shipping operations.

By Maida Napolitano, Contributing Editor

Japan-based ASICS Corp.—an acronym from the Latin phrase, *Anima Sana In Corpore Sano* (“a sound mind in a sound body”)—employs the latest in scientific research for the sole purpose of staying ahead of the curve when manufacturing some of the most advanced athletic products in the world. Since being introduced to the United States in 1977, the manufacturer has gained tremendous ground as the go-to footwear in this country’s burgeoning population of running aficionados.

Today, its American subsidiary, ASICS America, distributes athletic footwear, apparel and accessories to a vast array of customers—including major sporting goods stores, department stores, family footwear retailers and specialty stores in the U.S., Canada and Brazil. The company has been growing rapidly; reporting double-digit gains in net income in 2012. With
such impressive growth comes great responsibility, and ASICS America’s distribution team has kept a close eye on its distribution infrastructure so that it can continuously and seamlessly support revenue growth while efficiently meeting customer requirements.

Since 1996, the team had operated what was in its day a state-of-the art distribution center with pickers using mobile radio frequency (RF) devices to zone-pick orders from traditional pick modules to cartons on conveyors. Initially designed to support $500 million in sales, this old DC began feeling the pain as sales—predicted to grow to $1 billion by 2015—began exceeding its capacity. The DC operations team knew it had to step up to keep pace with growing demands as well as corporate expansion plans.

So in August 2011, the team flipped the switch on a new, technologically advanced, 520,000-square-foot paperless, wireless DC in Marshall County, Miss., to process the company’s footwear product line that drives the majority of its business. ASICS completely transformed the way it processed footwear orders to accommodate rapid growth using a high-capacity unit sorter. The company used mobile equipment to keep a real-time check on inventory; improve communication among floor supervisors; and efficiently manage assets, resources, and shipping operations.

Outgrowing the old DC
After years of aggressive growth, it wasn’t until 2007 when Kyle Koestler, ASICS America’s director of DC planning, knew something had to give. “The capacity of the old DC was about 50,000 units per day, but we needed to ship an average of 65,000 units per day. We basically had to work 22 of 24 hours, and during our peak season, overtime hours were especially severe,” he says.

Continued SKU proliferation didn’t help matters. While the old DC had only 12,000 total pick faces, including apparel, it was potentially processing in excess of 20,000 SKUs. “Whatever SKUs that we weren’t picking for the day we pulled out and replaced with whatever SKUs we needed,” recalls Kim Appling, director of DC operations. “We would do this at night so that when the workers came in they could just start picking.”

Most of its business drove outbound processing and shipping to the end of the month, but because it couldn’t keep up, the DC had to process a number of its end-of-the-month orders by the middle of the month. That compound-

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Time for change
In early 2008, the ASICS team began the transition to a distribution strategy that could better address its needs. With the existing facility landlocked with development on all three sides, the group came to a decision not to expand the existing DC, but to open a new DC in nearby Marshall County just 20 miles from the original DC.

In 2009, they presented their business case to ASICS Japan. “After we got the approval from Japan, we began initial design sessions between ASICS operations, engineering, and our external partners,” says Appling. The team established business requirements and investigated potential technologies. Much of the initial design discussion revolved around whether to stay with the traditional pick modules or move toward a unit sorter. The planning team did an in-depth analysis of each current distribution channel along with other potential channels of growth and quickly decided that the cross-belt unit sorter could better meet future business needs.

“The unit sorter doesn’t really care how many SKUs you’re actually

Footwear unit cartons bound for the same destination accumulate on a chute.

How ASICS uses mobile devices to drive its wireless, paperless DC

1. At receiving, containers arrive and are offloaded, scanned and verified against the advanced shipping notice (ASN) using handheld RF devices. Using extendable conveyors, cartons are manually unloaded and another handheld RF device is used to scan each inbound carton to the proper pallet.

2. Once palletized, tasks are automatically generated to drivers on reach trucks equipped with onboard RF scanners to pick up the pallet from the designated receiving lane and deliver it to the appropriate pick-up-and-delivery location. Turret trucks, also with onboard scanners, pick up the loads and store them in reserved locations in very narrow aisle (VNA) storage, based on that product’s movement. Once stored, it is now “allocatable” within the ASICS warehouse management system (WMS).

3. Each day, a wave-planning team analyzes the different orders received for the day, using an array of control variables to organize orders into waves. “Not only do they make sure that they’re not overloading any one particular area, they also have to balance the needs of shipping and what they have scheduled to go out the door,” says Kim Appling, director of DC operations.

4. Once a wave is determined, tasks are automatically generated through the WMS to have individuals on lift trucks, or on foot with wrist-mounted RF scanners, to pick the necessary products for a wave from pallet, case or unit reserved storage. Picked product is then transported to a wave bank “staging area” where it awaits the release of a wave to the cross-belt unit sorter.

5. Once a wave is released, cartons are placed on conveyors that travel through a pre-sort area. Full case orders—about 25% of total volume—are diverted directly to shipping, while the rest of the cases to be distributed continue on to one of four induction stations. At each induction station, a worker scans a case and “feeds” the unit sorter the required number of units. Any partial cases are placed back on another conveyor for transport to a residuals area where it again gets scanned and put away to a WMS-designated location.

6. In the meantime, the unit sorter automatically sorts each unit to the proper chute. Once all the units for an outbound carton have been diverted to the chute, a light on the chute starts blinking, indicating that the items are ready to be packed out. A packer goes to the chute and scans the chute with another wireless device, telling the worker what size outbound carton to use.

7. The carton’s license plate bar code is scanned, and all the units are packed into the carton with UPCs stacked face-up. Once packed, the outbound carton is pushed to a take-away conveyor underneath the pack stations. The packer scans the chute again, clearing it for the next sort.

8. The completed outbound carton travels to an in-line camera that snaps a photo, validating that all the UPCs in that carton are what should be associated with that carton’s bar code. Any inconsistencies are diverted to a resolution area. Cartons requiring additional processing—such a special ticketing—are diverted to a value-added service area, while others continue on to taping and print-and-apply stations where shipping labels are automatically affixed to the carton. Outbound cartons then continue to one of 18 shipping lanes where they can be either directly loaded onto waiting trailers or palletized and staged for later loading.

“For 1,000 cartons on the wave, probably 996 go without issue,” says Kyle Koestler, director of DC planning for ASICS America. As a result, both Appling and Koestler have set up their own proprietary procedure that reconciles all loads on a wave within an hour after closing the wave on the sorter. Problem cartons are diverted to a resolution area where another stream of processes and tasks are automatically generated to get the problem cartons back on track.
processing,” says Appling. “And that fits the picture for our five-year to 15-year growth plan while saving us time and space and increasing efficiency.” Tours to other DCs deploying similar unit sorters reinforced the decision and greatly aided the team in the design process. The team eventually selected a cross-belt sorter that best fit the company’s business requirements and long-term goals.

Building construction started in February 2010 with the unit sorter installation beginning in November 2010. Testing and training occurred simultaneously as the sorter was being built. “Our single largest problem was getting our full-time employees to ‘unlearn’ what they thought they knew,” says Appling. “Everything was so different from what we did at the old DC that it became a running joke within the facility to just unlearn the old process.”

Koestler agrees. “It was a total change, even for management.”

In April 2011, ASICS took ownership of the facility and immediately began moving off-site storage into the new DC. With four million pairs of shoes to transition over, management knew it couldn’t happen overnight. Preparations began for a phased-in approach, first shipping only seven customer accounts in a “soft go-live” event in May.

“We built the inventory to support the first seven accounts,” says Koestler. “We stayed in as close communication as possible with customer service, sales, and the customers involved, resolving issues as quickly as we could,” he says. By August 2011, ASICS had completely transitioned the processing of all footwear accounts into the new facility.

The old facility remains open to process apparel and accessories. According to Appling, because apparel has such different product characteristics than footwear, the apparel chutes would require a completely different pitch. “In the next five years we’re looking to see what needs to happen to retrofit this facility so that we can consolidate apparel and accessories into the new DC.”

Mobility in the DC

From receiving through shipping, the entire inventory at ASICS is tracked in real time using a variety of wireless RF devices with scanners that are handheld, mounted on wrists, or onboard lift trucks. “If you move it, you scan it; if you scan it, you move it,” quips Koestler.

Real-time scanning has not only increased inventory accuracy levels, but it has also improved real-time decision making. “It’s helped us get quick resolution to issues,” Koestler adds. “If a carton is out of place, workers can scan it and immediately put it in the correct location.”

Other types of mobile devices have also been invaluable for fostering effective communication. Supervisors use ra-
dios to keep in constant contact on the floor, while managers use smart phones. “We’re actually experimenting with some tablet devices, trying to see how it can best fit the operation,” says Koestler. He envisions floor supervisors using the tablets primarily for inventory control as mobile workstations or to track productivity and staffing levels throughout the DC.

**Benefits pouring in**
With the old pick-pack operation, Koestler and Appling estimated that picking accuracy levels were about 98.5%. With the new DC, accuracy levels have dramatically improved to 99.99%.

The old system allowed the DC to process 65,000 units per day by working multiple shifts with excessive overtime. “Now we are able to basically double that all on one shift,” says Appling.

As a result, overtime percentage, which hovered around 10% in the old DC, has dropped down to 2% in the new DC, while labor cost per unit has decreased by 43%.

Processing time for “at-once” orders has also reduced dramatically from three to five days to just under two days for both DCs. For footwear alone, the DC can now process “at-once” orders within one business day.

Both Koestler and Appling have been getting plenty of positive reviews from ASICS customers. “Not just for the quicker order turn time, but the accuracy percentages and the ease of doing business with the two DCs,” says Appling.

Koestler credits the DC’s success to every person involved—from the planning and implementation team to the ASICS sales group who dealt directly with any customer issues. “Despite the new automation and equipment, we still needed good people to set it up right, then monitor it to make sure things are working the way they should be.”

Appling agrees. “We didn’t have egos in the room. It was a collaborative, collective effort.”

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**System suppliers**

- **System integrator:** Fortna, fortna.com
- **Warehouse management system:** Manhattan Associates, manh.com
- **Lift trucks:** The Raymond Corp., raymondcorp.com
- **Cross-belt unit sorter:** Beumer Group, beumergroup.com
- **Print-and-apply equipment:** Panther Industries, print-n-apply.com
- **Mobile devices:** Motorola Solutions, motorola.com