



2012 Productivity Achievement Awards

Each year, *Modern's* Productivity Achievement Awards honor companies that have been featured as system reports on *Modern's* cover in the previous year. These companies have made outstanding strides in improving operations through materials handling and related information systems.

The categories of *Manufacturing* and *Warehousing/Distribution* recognize companies for their ability to provide outstanding customer service, quickly respond to changing business conditions, deliver orders that meet

customer requirements, and improve operations. The *Innovation* category honors a company that successfully employed a solution that defies convention.

This year's panel of Productivity Achievement Awards judges includes: Bryan Jensen, vice president with supply chain consultancy St. Onge; John Ling, executive vice president of global operations and supply chain management for Crate and Barrel; and George Prest, chief executive officer for the Material Handling Industry of America (MHIA).

Feedback on our winners from this year's panel of judges...

Oriental Trading

WAREHOUSING/ DISTRIBUTION

Oriental Trading Company

"Oriental Trading achieved extraordinary improvements in its operation through thoughtful and substantive materials handling equipment investment in high volume, cycle-time-sensitive environments. Its volume, almost exclusively all in broken case volume, warrants particular notice."

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W&H W&H
Systems, Inc.

WAREHOUSING/DISTRIBUTION WINNER
Oriental Trading Company:
A warehouse under control

The large, direct-to-consumer retailer's new warehouse relies on a sophisticated warehouse control system to pick up to 400,000 items a day.

As the nation's largest direct-to-consumer retailer of value-priced party supplies, toys and novelties, Oriental Trading Company (OTC) is best known for products associated with fun and games. Perennial bestsellers like whoopee cushions reflect the play. The company's new 750,000-square-foot distribution center in LaVista, Neb., reflects the hard work. When the facility went live in 2007, OTC transitioned from a conventional, paper-driven DC to a highly automated facility that manages more than 30,000 SKUs. In 2010, the facility picked and packed 78 million units a year.

To hit those numbers, OTC implemented:

- a 250,000-square-foot fulfillment area featuring a three-level mezzanine,
- voice recognition technology to automate picking,
- a sophisticated double-density tilt tray sorter and conveyor system that feeds 600 packout stations, and
- a secondary sortation system to deliver packages to carrier trailers.

The engine behind those improve-

ments is a warehouse control system (W&H Systems, whsystems.com) that has taken on many of the functions more typically associated with a warehouse management system (WMS).

In addition to controlling conveyor and sortation systems, the warehouse control system (WCS) optimizes picking and packing waves, sends pick information to voice picking, and directs the packout operations. The WMS, meanwhile, is primarily in charge of inventory management and communication with the host system.

The result has been an impressive 45% increase in productivity and a 60% reduction in pick errors. Accuracy has improved from 99.25% to 99.9%.

Party on

Founded in Omaha in 1932, Oriental Trading continues to grow, employing 3,000 associates, mailing nearly 300 million catalogs a year and handling more orders for out of season products offered on the Web compared to catalog customers who ordered from whatever items were offered in the book.

A typical order consists of six to

seven line items and 14 units that were being picked across 24,000 possible SKUs. With those order profiles, the paper-driven, pick-to-cart fulfillment processes in the old facility were manual and physically taxing.

"In our old facility, we had a capacity for about 24,000 SKUs," says Deon Wagner, director of warehouse operations. "We simply didn't have the room to add the new SKUs that our merchandising team wanted to bring in to continue to grow our business."

The combination of physical constraints and the physicality of the job led to the design of the new facility. "We wanted to support SKU proliferation with a pick zone that could hold up to 50,000 SKUs," Wagner says. "And we wanted to drive pick density in our picking processes to minimize travel distances and pick times."

Explode and assemble

The solution was a highly integrated and flexible picking methodology that brings together an order management system, WMS, WCS, conveyor and sortation system, and voice recognition technology to find the optimal way to

pick and assemble a wave of orders.

With this new 'explode and assemble' methodology, orders still begin at the WMS, but the system creates a wave of 8,000 to 10,000 orders and 100,000 units to be picked. That wave is passed to the WCS which determines the best way execution based on the order profile, item locations and the sorter workload.

The WCS creates four picking and packing subwaves; picking assignments are assigned to an induction location on the double-density tilt tray sorter, and orders are assigned to a chute leading to one of 600 packout locations.

The WCS plans the work based on several criteria. It looks at which items will consume the entire contents of a case. Those tasks are sent to a case break area. The idea is that associates will pick by location rather than fill all the items of an individual order. That way, a location is only visited once for each wave.

While picking, associates are directed by the voice system to pick to up to 16 different totes until a case is consumed. Filled totes are held in a pick module until the sorter is ready for

a subwave. Then the associate releases a tote to the takeaway conveyor, which sends it to an induction point.

That's the explosion piece. For the assemble part, the tilt tray sorter identifies the items for a single order and sends them to a packout chute. After an order is packed into a shipping container, it is conveyed to an automatic tape and sealing sorter and scanned again. If the carton is 100% complete, it is sorted to an automated tape-sealing machine and continues to the shipping sorter.

Smooth transition

The transition to automation was smooth. Associates have gone from walking many miles a day to less than one, which has significantly reduced staff turnover. What's more, associates are cross trained to ensure execution of the wave plan.

But the most important benefit may be for OTC's DC to support 50,000 SKUs in the future.



Items are picked to totes from a number of different picking zones and then conveyed to one of the sorter induction areas, where they are placed on the tilt tray sortation system.

System suppliers

System design, integration and warehouse control system:

W&H Systems, whsystems.com

WMS: Interlink Technologies, interlinktech.com

Conveyor/tilt tray sortation: Beumer, beumer.com

Conveyor/sortation: Intelligrated, intelligrated.com

Voice recognition technology: Lucas Systems, lucasware.com

Picking rack and mezzanine: Unarco Material Handling, unarcorack.com

Pallet racking: Interlake Mecalux, interlakemecalux.com

Lift trucks: Crown Equipment Corp., crown.com

Bar code scanning: Motorola Solutions, motorolasolutions.com

Radio frequency system: Psion, psion.com

Appeared in the September 2010 issue. Read the complete article: mmh.com/article/oriental_trading_company_gets_its_warehouse_under_control