

Random House cuts turnaround in half



Annette Danek, vice president of fulfillment for Random House

By Bob Trebilcock, Executive Editor

Big-box retailers, the Internet and e-books have upended the way books are purchased by consumers. Many of those same dynamics are altering the way books are distributed as well.

Not so long ago, Random House Inc.—the world's largest English-language trade book publisher—distributed only its own newly published and backlist hardcovers, trade and mass-market paperbacks, and audio books issued by its nearly 100 imprints in North America. What's more, a significant portion of those books were likely to be shipped as full-pallet orders.

Today, Random House still distributes its own titles. But, it also has a growing third-party distribution business, shipping titles for 30 other publishers to thousands of brick and mortar retailers, distributors, wholesalers and libraries, as well as direct-to-consumer Web orders. In addition to



Thanks to a new tilt-tray sortation system, Random House is beating the competition to market and improving turnaround times by nearly 50%.

warehousing and shipping, Random House also handles customer service and back-office support functions for its third-party customers.

The profile of those orders has also changed. According to Annette Danek, vice president of fulfillment, who runs the company's distribution and fulfillment centers, "As people are buying more electronic books, you don't need as many physical books in the supply chain." As a result, full pallets comprise fewer than 10% of the units shipped from Random House's 1.3-million-square-foot distribution center in Westminster, Md. About

60% of the units are full cartons and 30% are loose picks—individual titles picked to a mixed carton.

has been improved by 50% since the sorter went live even as the company increased its overall title volume with its non-Random House clientele. The change was a calculated strategic decision made together by company CEO Markus Dohle; Madeline McIntosh, the president of sales, operations and digital; and the senior distribution leadership that has paid off despite an economic slowdown. "We decided to invest in our physical infrastructure at a time when most publishers have put on the brakes with theirs," says Danek. "We're now able to get our books delivered faster than our competition, and we have become a more effective and profitable partner for our booksellers with our advanced supply chain productivity and efficiency."

The payoff: Random House has reduced lead times and increased throughput since the sorter went live, adding 10 new outside publishers as Random House Publisher Services clients. And, there is room to grow. "We could double or triple our SKUs and keep the same turnaround times because of the sorter," Danek says.

Hitting the distribution wall

In addition to choosing great authors and publishing hundreds of bestsellers and many Pulitzer and other prize winners among its more than 8,000 new titles a year, Random House considers distribution one of its core competencies. The company prides itself on having the finest distribution system in the book publishing industry. It was recently named Amazon.com's "Distributor of the Year" for its efforts on behalf of the third-party publishing clients that are overseen by the Random House Publisher Services group.

At present, Random House operates two national distribution centers. In addition to the Maryland facility, which is the largest DC in the publishing industry, it operates a second facility in Indiana. The facilities differ by the products they ship: Indiana primarily ships children's books while Westminster ships titles for adult readers.

Prior to the tilt-tray sorter going live in October 2009, the Westminster facility was up against a distribution wall that was hindering its growth. "We put in our first conveyor system for piece picking in 2000, before we entered the third-party dis-

To address those changes and to support its growing third-party logistics (3PL) business, Random House added a single-tray tilt-tray sorter (Intelligrated, www.intelligrated.com) to the Westminster facility in the fall of 2009.

The 712-foot-long sorter features:

- Two induction locations with six stations each and four induction belts per station, for a total of 12 high-capacity singulated automatic inductions.
- Overhead scanning after each array of induction stations. The scanners read a UPC bar code on the exterior of each item on the sorter.
- And, 250 double-level chutes for a total of 500 potential sort/pack-out destinations. Packers are responsible for more than one-sort destination.

The sorter allows Random House to efficiently handle the mixed-case and direct-to-consumer orders that now comprise a larger share of its business. Order turnaround time

tribution business,” says Danek. “The system was designed with fewer than 20 pick modules to handle 16,000 SKUs.” That system was also installed before the e-book phenomenon took off.

Once Random House began taking on distribution for other publishers, that picking system proved inadequate for two important reasons.

- The shelving and pick modules were added on an as-needed basis to accommodate new customers and not in an integrated fashion. “We were tearing out carton flow rack and replacing it with shelving in our picking areas,” says Danek. “We got more density, but we had to replenish those locations more frequently.”

- With additional pick modules, cartons visited more modules to complete an order using a pick-and-pass picking method. “When we only had 20 modules, a typical carton would visit three or four modules to complete an order,” Danek says. “Once we got up to about 35 modules, a carton would go to nine or 10 modules before an order was complete.” Approximately

66% of orders were shipping in three business days or less.

During this same period, e-books became a potent force in the consumer marketplace. This explosive-growth, reading and distribution format further altered a business model that was already under pressure. Random House’s customers were returning more excess titles than in the past. All those returns had to be processed and returned to inventory, which further slowed down processes.

“One of our strategic initiatives was to reduce our returns by speeding up our supply chain,” says Danek. The idea was to encourage large customers to become demand-driven: Instead of ordering once a week or once a month and then returning unsold titles, Random House urged its largest customers to carry less inventory and order daily, based on the titles that were selling. That way, fewer unsold books would be returned.

From a distribution point of view, that meant customers would be ordering fewer full carton or multiple carton orders and more mixed carton or loose items. “To do this successfully, we had to reduce our lead times because our customers would be placing an order once a day and we would be doing more with each picking,” says Danek.

Once orders have been picked and packed, cartons are delivered to a quality assurance area for a weight check. From there, cartons are sealed, labeled and sorted to a shipping lane.



Narrow-aisle wire-guided turret trucks are used for putaway and picking in the full-pallet storage area.

“Since we already had a bottleneck in the each picking area, we had to devise new picking and handling processes.”

Sorting through bottlenecks

A tilt-tray sorter proved to be the most effective solution for the Westminster facility. One of Random House’s priorities was to replace the pick-and-pass picking with a new methodology that would allow it to send a book from a pick module to the shipping dock without routing it through nine or 10 pick modules.

With a tilt-tray sorter, Random House could aggregate the picking process. Instead of sending a shipping container from one module to the next, all of the items from a single-pick module



are sent to a sorter induction point. The sorter then routes all of the items for an order to one of 500 packing destinations. Once all of the books for a carton have accumulated, a light flashes to notify a packer that an order is ready to be packed.

In this system, one packer can handle several packing locations at a time. Once a carton is packed, it's placed on a takeaway conveyor, and then automatically scanned and conveyed to a final pack. There, it's weight-checked, bubble-wrapped, sealed, labeled for shipping, and sent to shipping, where it is loaded for delivery.

By aggregating orders, approximately 98% of orders ship in three business days or less. The system is flexible enough to maintain that level of productivity through the inevitable order-cycle peaks and valleys.

Once Random House settled on a technology, there were logistical problems to address. One was a matter of layout. "We already had a mezzanine and we knew we needed certain operating speeds," says Danek. "But we didn't have a lot of space and we had issues like I-beams in the way."

The system integrator came up with a way to fit the sorter on the mezzanine within the architectural constraints of the building.

A second concern was whether the process of moving books from the sorter to a packout station would cause damage. "The pitch of the chute is pretty important to prevent damage," says Danek. A team from Random House spent a day at the integrator's facility in Frederick, Md., testing more than 100 sample books that varied from large and heavy coffee table books to textured children's books. "We looked at a number of sorter designs, and this one handled our books in the gentlest way," Danek says.

Danek adds that the picking processes in the loose pick area remained the same. "We were already using voice technology to direct our picks," she says. "By creating a denser picking area, we picked up a 15% gain in productivity



Associates are directed by voice in the piece picking area. Once all the items have been picked, a tote is conveyed to an induction point for the tilt-tray sortation system.

and the sorter improved our accuracy. But the change with the most impact was improving our throughput rate by almost 50%."

As Random House approaches its second anniversary with the sorter, returns are on the decline. More importantly, with the increasing shift to e-books, the speed to market enabled by the sorter has kept Random House a

big step ahead of the competition.

"By putting in this system, we can accommodate our growth and we can get our physical books to our customers faster than other publishers," she says. "We have a mandate to have the best supply chain in book publishing, and with it we will grow both the profitability of our customers with Random House titles, as well as our own."

Speed to market

Random House's new picking methodology aggregates orders for faster turnaround times and speedier delivery to the market.

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Receiving: Random House receives (1) full trailer load shipments on full, half or mixed pallets from the binderies. Pallets are unloaded to a staging area in the receiving area (2) where they are checked in against a production order in the warehouse management system (WMS). As product is checked in, the

WMS creates a license plate bar code label for the pallet and assigns a put-away location in one of the reserve storage areas (3).

Putaway: Once a pallet has been received in the WMS, a lift truck operator scans the license plate bar code label and is then directed to a drop off

location for one of the storage areas (3). There, the load will be retrieved by a narrow-aisle, wire-guided turret truck. The turret truck operator scans and is directed by the WMS to a storage location. The operator confirms the put-away by scanning the storage location label.

Picking: Orders are received in the WMS and batched into waves. Depending on what has to be picked and shipped during that shift, a wave may be created based on a variety of criteria including a customer, a carrier, carrier pick-up times and international orders. Picks are also grouped by full pallet picks, full carton picks and each picks.

• **Pallet picks:** Pallet labels are distributed to the turret truck operators in the storage area (3). Once they scan a pallet label, the WMS directs them to a pick location. After the pallet is delivered to a staging station, it is picked up by another lift truck operator and delivered to the stretch wrapper if neces-

Random House Westminster, Md.

Size: 1.3 million square feet

Products handled: Books

SKUs: 45,000+

Throughput: 500,000 units per day

Employees: 450 with seasonal adjustments

Shifts/Days: 3 shifts/5 days

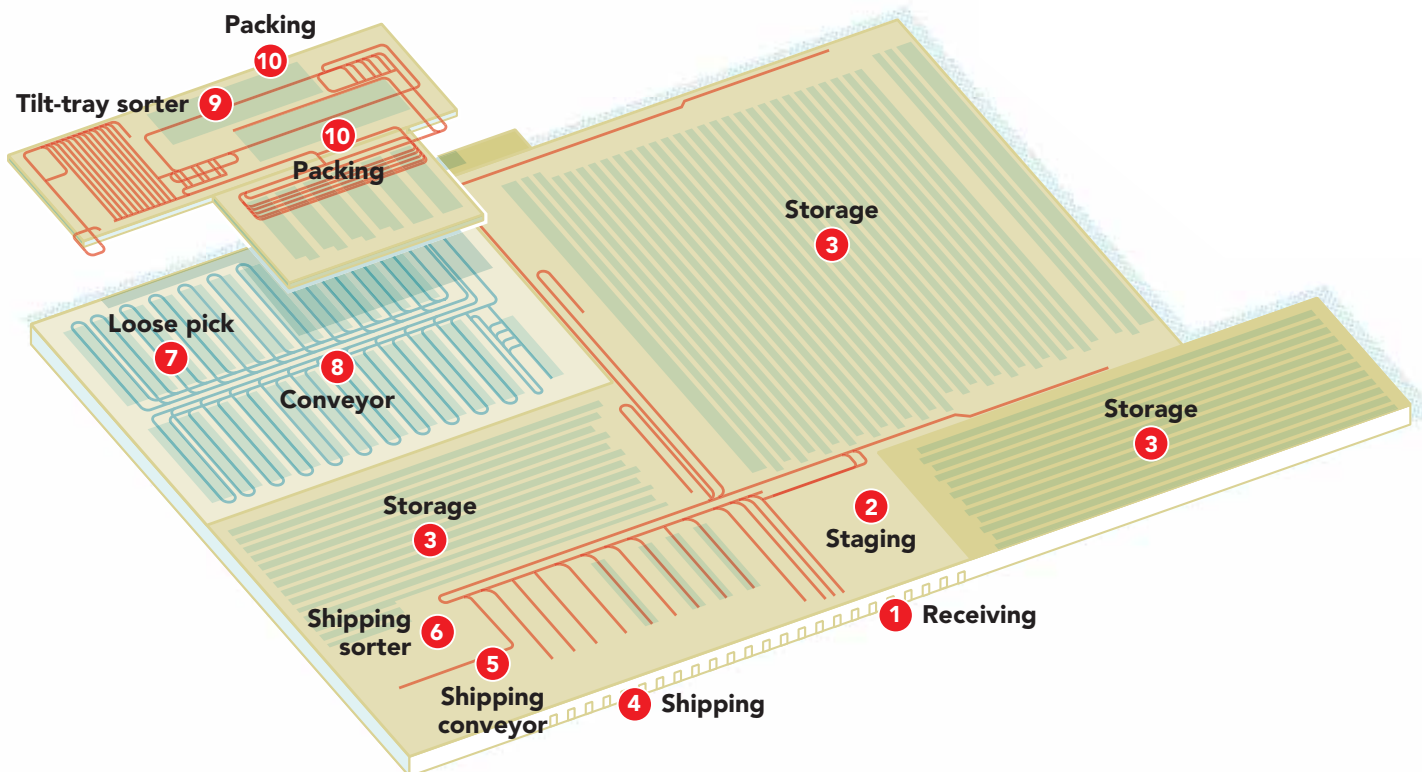
sary and then to the shipping dock (4), where it is staged for loading.

• **Carton picks:** A full carton contains 12 copies of one book title. For full carton picks, labels are printed in advance and divided into clusters of 60 cartons, the equivalent of a full pallet. Whenever possible, all 60 cartons will be picked from one aisle in the warehouse. Working from a pallet truck, the order selector is directed to a storage location after scanning a carton label. The selector then applies the label to the carton, places it on the pallet and

then repeats that process until the pallet is complete. The pallet is then delivered to an induction point where another associate loads the cartons onto the shipping conveyor (5). Once on the conveyor, the cartons are diverted to one of 16 shipping lanes by a sliding shoe sorter (6). At the end of the shipping lane (4), the cartons are palletized for delivery.

• **Piece picking:** Individual items are selected from pick locations in the loose pick area (7). Associates in this area are directed by a voice-picking solution. To start the process, an order selector scans a label on a tote container and is directed to a pick location. The pick is confirmed by voice or by scanning a bar code. Once all the items for that tote have been picked, the order is closed by scanning the label on the tote and placing it on a conveyor (8). There it is transported to an induction point for the tilt-tray sortation system (9) on the mezzanine.

Packing: Just as orders are batched



into waves for picking, tote containers accumulate at one of two induction points for the tilt-tray sorter (9) until the pack out stations (10) are ready for a wave. An associate empties the books in the totes onto an automatic feed conveyor. They are scanned as they are automatically placed on one of the tilt trays and then sorted to the correct pack out chute. Books accumulate until there are enough items for a carton. At that point, a blinking light alerts the packer to begin to pack the order. When the packer scans a location label at the chute, the WMS identifies the right size carton for that order, depending on the size of the books. Once the carton is complete, the packer scans the bar code label on the carton and places it on a take away conveyor. At that point, the packer is directed to the next chute ready for packing.

Shipping: From the packing station, the takeaway conveyor delivers cartons to a quality assurance weight

check. After the scale, cartons are sealed and labeled and then conveyed by the shipping sorter (6) to the correct shipping lane (4). There, they will be married with any other cartons associated with that order. About 80% of all units will be palletized and shipped

as either a full truckload or less-than-truckload shipment. The other 20% will ship as parcel shipments. Most of those will go directly from the conveyor into a parcel shipper's truck. Some may be palletized and sent to a parcel shipping hub. □

System suppliers

TILT TRAY SORTATION AND CONVEYOR SYSTEM AND SYSTEM INTEGRATION:

Intelligrated, www.intelligrated.com

CONVEYOR SYSTEM: Automotion, www.automotionconveyors.com

INTEGRATOR: TransTech Consulting, www.transtechconsulting.com

WMS: RedPrairie, www.redprairie.com

VOICE RECOGNITION TECHNOLOGY: Dematic, www.dematic.com

LIFT TRUCKS: Raymond, www.raymond-corp.com

BAR CODE SCANNING: Motorola Solutions, www.motorolasolutions.com

OVERHEAD SCANNING: SICK, www.sick.com

FULL CASE RACK: Ridg-U-Rak, www.ridg-u-rak.com

CARTON FLOW RACK: Unarco, www.unarcorack.com/cartonflow/main.html

Stretch-wrapper: Lantech, www.lantech.com

MEZZANINE: Unarco, www.unarcorack.com/Mezzanines/Mezzanine-Main.html