THIRD-PARTY LOGISTICS & FULFILLMENT

LIGHTNING PICK

HOW FLEXIBLY ENGINEERED LIGHT-DIRECTED PICKING SOLUTIONS INCREASE RETAIL 3PL / 3PF THROUGHPUT, ACCURACY AND PRODUCTIVITY

For third-party logistics (3PL) warehousing and third-party fulfillment (3PF) service providers in the U.S., e-commerce and omni-channel retail business opportunities are on the rise. It's no surprise, as American consumers are increasingly buying an even broader range of items online. E-commerce spending hit $102.7 billion online in the fourth quarter of 2016, bringing total online sales to $394.9 billion, a 15.1% increase from 2015, according to the Census Bureau of the U.S. Department of Commerce.[1]

Whether a retailer is web-only or stocks both online and brick-and-mortar storefronts, they're competing to attract and retain shoppers with low prices and great customer service offerings, such as later order cut-off times, next- or same-day delivery, free shipping, no minimum order requirements, and curated monthly subscription packages. To help get ahead of (or keep up with) the massive amounts of manual labor required to handle this profusion of one and two line-item orders and associated returns, retailers are increasingly turning to 3PLs and 3PFs.

That's because—along with their supply chain operations management counterparts across multiple indus-tries—e-commerce and omni-channel retailers are struggling with three key challenges. According to the 2017 MHI Annual Industry Report, "Next-Generation Supply Chains: Digital, On-Demand and Always-On," a survey of more than 1,100 manufacturing and supply chain industry leaders identified those top three as:

- Hiring and retaining a skilled workforce (63%)
- Customer demand for faster response times (55%)
- Customer demand for lower delivered costs (53%)[2]

1. DeNale, Rebecca and Weidenhamer, Deanna. "Quarterly Retail E-Commerce Sales, 4th Quarter 2016." U.S. Census Bureau News, U.S. Department of Commerce. February 17, 2017. Accessed May 11, 2017. https://www.census.gov/retail/mrts/www/data/pdf/ec_current.pdf
2. MHI. "2017 MHI Annual Industry Report – Next Generation Supply Chains: Digital, On-Demand and Always-On." April 2017. Accessed May 11, 2017. https://www.mhi.org/publications/report

When companies opt to outsource, 66% are looking for warehousing and distribution assistance, says *Inbound Logistics'* 3PL Perspectives 2016 report.[3] And they're willing to pay for it—the same study found that 78% prioritize customer service over cost.

"The service that consumers have come to expect from retailers reverberates back up the supply chain. When shoppers want products fast, retailers need their shipments fast. Manufacturers need their supplies fast. Suppliers need their raw materials fast. Everything speeds up, all the way down the chain. A large part of customer service is reliability, and with the new pace and expectations set by the e-commerce age, reliability is one of the most valuable things that a 3PL can provide."[4]

The recognition by retailers of the advantages outsourcing partners bring correlates to growth in the value-added warehousing and distribution (VAWD) segment of the U.S. 3PL/contract logistics market. As noted by 3PL market research and consulting firm Armstrong & Associates in its most current report available, that segment represented $38.4 billion in gross revenue[5] in 2015, an increase of 2.2%[6] over 2014.

To summarize: e-commerce and omni-channel retailers have problems, and 3PLs have solutions.

Specifically, 3PLs and 3PFs are more likely to invest in technology and automation solutions that helps their operations continue to deliver high levels of reliable customer service and offset labor concerns, notes the *Inbound Logistics* report.

Among the automated order fulfillment technologies available are light-directed picking systems. While the benefits of automated light-directed picking as an alternative to paper-based, manual processes are well understood by 3PL and 3PF warehouse and fulfillment managers (see figure 1), there has been a misperception that the hardware lacks the flexibility these operations require.

In fact, the opposite is true.

Figure 1

PICK-TO-LIGHT ADVANTAGES

50%
AVERAGE PRODUCTIVITY INCREASE

99%
AVERGAGE ACCURACY RATE

50%
LABOR COST REDUCTION

SHORTER ORDER CYCLE TIME

INCREASED THROUGHPUT RATE

FASTER EMPLOYEE TRAINING TIME

3.   McDowell, Jason. "3PL Perspectives 2016." Inbound Logistics. July 2016. Accessed May 11, 2017. http://www.inboundlogistics.com/cms/article/3pl-perspectives-2016/
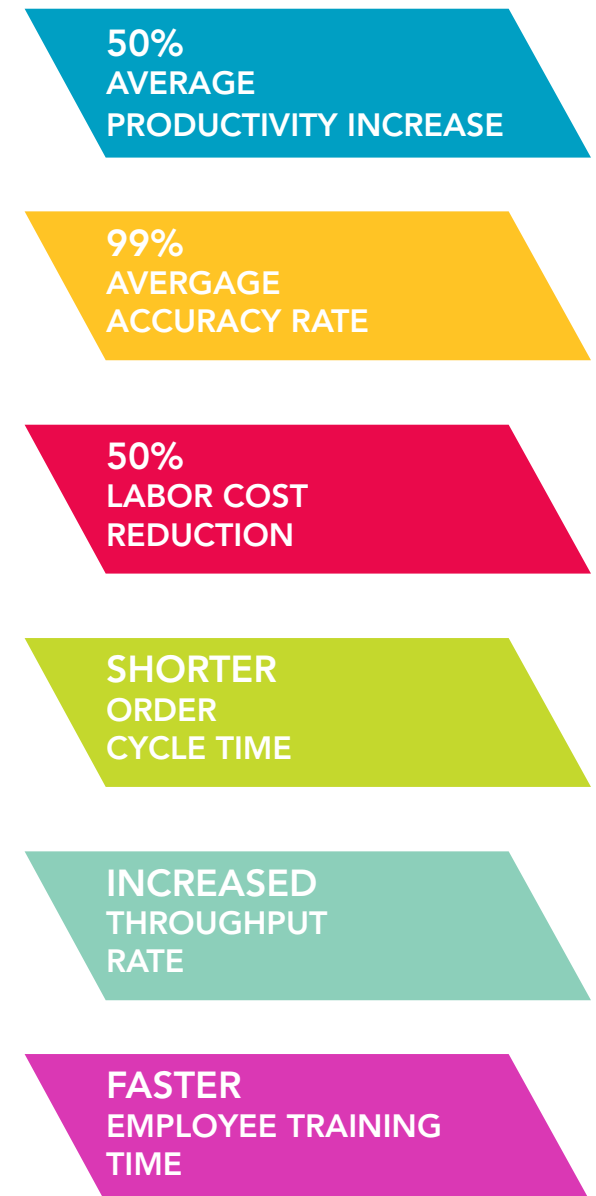
4.   Ibid.

5.   Armstrong, Evan. "U.S. 3PL Market Size Estimates." Armstrong & Associates, Inc. 2016. Accessed May 11, 2017. http://www.3plogistics.com/3pl-market-info-resources/3pl-market-information/us-3pl-market-size-estimates/

6.   Armstrong, Evan. "Tightened Up – Third-Party Logistics Market Results and Trends for 2016." Armstrong & Associates, Inc. June 14, 2016. Accessed May 11, 2017. http://www.3plogistics.com/tightened-up-third-party-logistics-market-results-and-trends-for-2016/

7.   McDowell, Jason. "3PL Perspectives 2016." Inbound Logistics. July 2016. Accessed May 11, 2017.

     http://www.inboundlogistics.com/cms/article/3pl-perspectives-2016/

When properly engineered and supported by the right software, a light-directed picking solution can actually provide tremendous flexibility to 3PLs and 3PFs: optimizing diverse product stock keeping units (SKUs), multiple accounts, unique requirements, seasonality spikes and fluctuating order volumes.

That's because certain light-directed picking automation configurations enable batch picking. By definition, batch picking is an order fulfillment process characterized by "groups of orders…picked at the same time to minimize repeat visits to the same product bin location [pick face]."[8] A single order picker travels through the warehouse, selecting items to fill multiple orders during a single trip during batch picking.

Successful batch picking often requires a warehouse management system (WMS) or order management system (OMS) to pre-arrange a group of orders based on shared commonality. For example, all orders which require one or more of the same stock keeping units (SKUs), or all the orders whose required SKU pick faces are located in close proximity to each other. After grouping them together, the system then releases the batch of orders to the picker.

The benefits of batch picking include:

- **More orders filled faster, boosting pick rates from 60-70 lines per hour to 200 lines per hour.[9]**
- **60% reduction in travel time per worker because more items are picked in one pass through the warehouse.[10]**
- **19% fewer pickers needed, as each fills more orders at one time.[11]**

This e-book explores how 3PL and 3PF service providers can leverage different configurations of light-directed picking automation to enable batch picking, thereby increasing throughput, accuracy and productivity while driving down costs.

8.   Del Franco, Mark. "Batch vs. Wave Picking." Multichannel Merchant. June 1, 2006. Accessed May 17, 2017. http://multichannelmerchant.com/operations/batch-vs-wave-picking/
9.   Ibid.
10. de Koster, René et al., "Reduction of Walking Time in the Distribution Center of De Bijenkorf," New Trends in Distribution Logistics, Lecture Notes in Economics and Mathematical Systems Volume 480, 1999, pp 215-234, http://link.springer.com/chapter/10.1007/978-3-642-58568-5_11, accessed May 17, 2017.
11. Ibid.

FLEXIBLE LIGHT-DIRECTED SOLUTIONS FOR 3PLS/3PFS

Whether using a single light-directed automation product, or multiple solutions for an integrated fulfillment system, properly engineered technologies simplify complex 3PL and 3PF operations and reduce associated costs.

Light-directed picking advantages for 3PL / 3PF applications:

- Support of multiple product lines and customers with a single, common hardware set.
- Freedom to move automation where needed as shifting product demands dictate.
- Hardware modularity allows for incremental expansions.
- Capacity gains support current and future growth projections.
- Easy to train new employees for faster productivity.
- Segregation of cart-based batch picking by product lines or clients to optimize travel paths.
- Lot capture and verification for food and beverage handling, pedigree tracking for medical and pharmaceutical applications, and more.
- Dynamic location re-configuration for easy switching between different customer lines in the same rack, shelving or other storage media.
- Integration with, or management of, complementary automation such as container routing, print-and-apply labeling, weigh stations, quality control (QC) workstations.
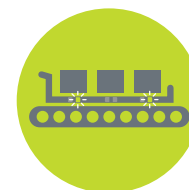
PICKING CARTS

A cart-based light-directed picking system enables batch picking of multiple orders at the same time—maximizing each picker's pass through a warehouse. Carts can be outfitted with multiple shelves, customized to virtually any size or shape, and equipped with a variety of options, including powered versions for handling heavy loads.

On the face of each pick cart shelf, individual light modules are mounted at every discrete order location. The modules feature both electronic messaging displays as well as an illuminated push button for pick confirmation. When the picker arrives at an assigned storage area, the cart's light-directed picking modules indicate which items should be distributed to each bin riding on the cart. (For this reason, pick-to-light on mobile pick carts can also be called put-to-light because the picked items are sorted, or put, into the indicated destination.) The modules also display the required quantity per order.

Because the modules are applied to the mobile cart, rather than to each unique static storage position or pick face, light-directed pick cart automation can be used with an unlimited number of SKUs and customers. This dramatically lowers installation costs. Further cost savings are realized by the elimination of conveyor for pick movement or transport, as the picks ride on the cart.

The ideal light-directed pick cart vendor provides not only the software to organize each cart's picks and guide the picker's travel along the shortest route, but also integrates batch optimization functionality. This feature tracks each cart's real-time location in the warehouse (as opposed to assuming the cart is following a pre-determined route) and directs the picker to collect additional, single-line picks along the travel path while navigating to the completed order drop point.

Light-directed pick carts can be used alone, or as part of an integrated order fulfillment system that includes other automated equipment, such as put walls.
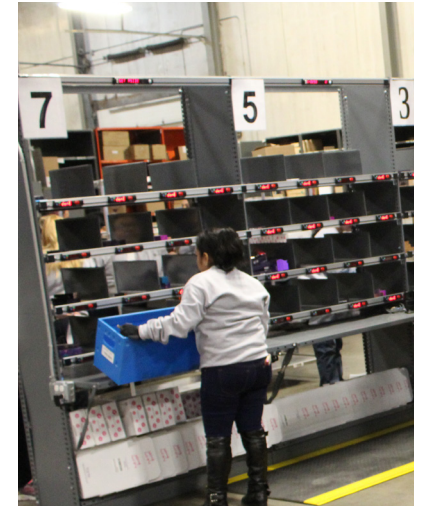
PUT WALLS

Space-efficient and economical, put walls (or put stations) utilize light-directed picking modules for high-speed, semi-automated sortation of mixed SKU products—batch picked with picking carts or other methods. They optimize high-speed, high volume, one- and two-line order sortation operations in a de-consolidation process sometimes called "pick-to-light in reverse."

Constructed as a series of shelves that have been divided vertically into multiple cubby openings (or that hold empty bins or totes), each space represents a unique customer order. Most put walls are open on both front and back, with each opening equipped with a unique light-directed picking module, one per side.

After a tote filled with larger quantities of mixed products required to fill orders arrives at the put wall's sortation (or put) side, the operator begins the de-consolidation process by scanning an item's barcode. The scan triggers the light modules to illuminate, indicating the put location and quantity of the item required to fill that unique order. The operator sorts the products into the designated locations, then presses a button to confirm that the order is complete. This triggers corresponding lights on the pack-out side of the put wall to illuminate, letting packers know when a completed order can be taken away for final packing.

The ideal put wall supplier offers further productivity enhancements—such as LED lighting within each destination cubby that illuminates simultaneously with the modules to increase visibility, or photo-eye sensor driven touchless task confirmation that automatically detects item placement without requiring a press of the push-button—to help operators sort faster.

- Utilizing put walls has been shown to speed up order fulfillment productivity from rates of 60 lines per hour to as many as 400 lines per hour, while bumping accuracy up to 99.9%.
- 3PLs and 3PFs can use put walls for returns processing, secondary batch pick sortation, kitting processes, putaway, replenishment and order consolidation applications.
- Light-directed put walls can be used alone, or as part of an integrated order fulfillment system that includes other automated equipment, such as pick carts.

LIGHT FRAMES

Mere inches thick, portable or fixed light frames are sturdy, welded metal structures equipped with pick-to-light modules across horizontal spans positioned at a variety of heights. The modules are spaced at pre-determined intervals that align with the pick faces or storage bays within a rack or shelving system. When outfitted with casters, the frames can be wheeled to a static storage position; alternately, portable storage units can be wheeled to fixed location frames.

Ideal for picking fast- and medium-velocity, broken case quantity SKUs, light frames enable a pick-to-light solution to be applied flexibly while significantly lowering installation costs. Because the modules are applied to the light frame—rather than to each unique static storage position or pick face—the pick-to-light automation can be used with an unlimited number of SKUs and customers.
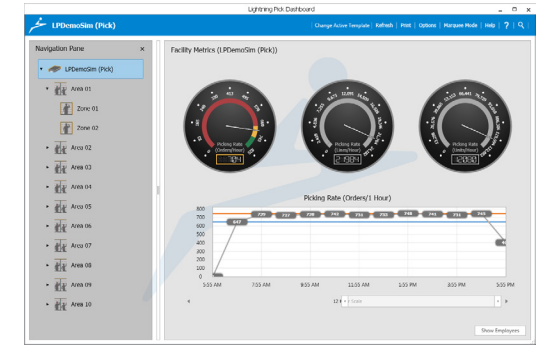
SOFTWARE

The ideal light-directed picking and order fulfillment execution software interfaces with one or more WMS utilized by a 3PL or 3PF—depending on their customers' requirements—via electronic data interchange (EDI) plug-ins to pull, organize and optimize the SKUs required for order fulfillment. Additionally, the software should track lots and other secondary characteristics, as well as alert pickers to additional verification or special handling requirements associated with a given SKU.

The same software flexibly and adaptably drives the light modules, regardless of their installation format (pick cart, put wall or light frame), sequencing and coordinating their independent functions and simultaneous interactions with other automation and equipment.

It should also be capable of controlling and directing cross-product combinations of automation technologies, such as integrated cart and put wall systems. When controlling pick carts, the software should feature integrated batch optimization functionality to track each cart's real-time location in the warehouse, and direct the collection of additional, single-line picks along the travel path.

Further, the software enables dynamic location assignment, allowing a light-module system to be easily reset to pick orders for multiple 3PL or 3PF clients from the same storage areas during different timeframes or shifts as needed. And the platform itself should be scalable and modular, enabling the addition of more light-directed picking modules and solutions as a 3PL or 3PF's operational needs change.

Finally, the ideal software streamlines and aggregates data from all light-directed systems, in real time, and display that information in a dashboard view. This enables complete collections of performance data to be viewed facility- or network-wide, or for drilling down into unique systems for a closer look at productivity or operational status in order to enhance fulfillment operation performance upstream, downstream and across all sub-processes within the 3PL or 3PF.

LIGHTNING PICK RESULTS

Lightning Pick has delivered proven results to many leading third-party providers. Many of these advantages were gained within months of system implementation, enabling a rapid ROI and expansion of our systems to other areas and operations requiring optimization.

Rapid results for Lightning Pick 3PL/3PF applications:

- Increased inventory handling capacity by 350%.
- Rates of up to 1,200 units put per hour, or up to 1,000 orders picked per hour, depending on product, process and other factors.
- Boost throughput by 40% over paper-based picking methods.
- 99.9+% accuracy levels that cut quality control requirements by more than 50% within the first few months of system use. (Picking carts and put-to-light are especially accurate because a scan of each product's bar code is required prior to each pick or put.)
- 50% reduction in associated labor costs well within the first year of system implementation.
- Reduced costs associated with mis-picked orders, including costs for returns processing, re-picks and re-shipment, as well as prevention of customer loss.
- Eliminate 3PL customers' chargebacks from shipment of mis-picked orders to retailers or other suppliers by ensuring adherence to compliance standards.
- Real-time Key Performance Indicators (KPIs) and statistics via Lightning Pick software for enhanced visibility into facilities, areas, zones and employee level data.
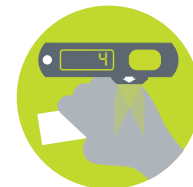
3PL CUSTOMER CASE STUDY VIDEO

Capacity, a leading third-party fulfillment provider, handles thousands of e-commerce orders every hour. To manage future demand, they partnered with Lightning Pick to implement an advanced order fulfillment solution.

Automated picking carts and integrated put walls work together for batch picking order waves, then sorting to individual customers orders. Plus, the two-sided put system directs box kitting, pack-out and other value-added services.

Using the flexible system, Capacity's fulfillment teams increased throughput for one top client from 2,500 orders per day to 12,000+. Watch this new solution in action.

WATCH THE CAPACITY VIDEO AND DOWNLOAD THE FULL CASE STUDY
lightningpick.com/third-party-logistics-3pl/

YOUR LIGHT-DIRECTED SOLUTION PARTNER FOR THIRD-PARTY LOGISTICS & FULFILLMENT

For many 3PL and 3PF providers, Lightning Pick is a trusted technology partner, helping them provide high-throughput, accurate and cost efficient order fulfillment services for their customers through expertly engineered light-directed picking automation solutions and software.

Lightning Pick's systems—including picking carts, put walls and light frames—directed by sophisticated software have delivered proven increases in throughput, accuracy and productivity while driving down costs at more than **500** installations worldwide.

Part of Matthews Automation Solutions, we deliver best-in-class, flexible, integrated material handling technologies. From pick automation and warehouse execution systems to order finishing automation for print-and-apply labeling, bagging, boxing and document intesertion, Matthews maximizes order fulfillment efficiency and performance.

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