



Unleash Your Warehouse's Hidden Potential:

A GUIDE TO IDENTIFYING AND SOLVING BOTTLENECKS

Your playbook for identifying and solving bottlenecks in your warehouse and fulfillment centers and adopting automated solutions that drive performance and efficiency.



|| Introduction

In a fast-paced warehouse or fulfillment center handling thousands of packages daily, even minor bottlenecks can be a significant drag on performance.

A bottleneck occurs whenever a process isn't as efficient as possible. It could stem from inefficiencies in warehouse design and operations for putaway and sorting operations. Perhaps there are extra touches or steps that each package must undergo during the process. When volumes are low, those are easy to overlook. **During a peak volume surge, however, extra seconds per package add up to a lot of wasted time and the risk of not meeting service level agreements (SLAs).**

Fulfillment bottlenecks can also occur when cells and aisles are not clearly marked or when workers have to match up alphanumeric labels to sort each package. It's too easy for workers to put packages in the wrong bag or bin. Memorizing the location of items or cells takes a lot of time, and many workers may not stay there long enough to learn the skills. Human errors can creep into the system, and sort rates suffer.

Some of these inefficiencies are due to improper manual solutions and setups—some of which are just too complex. Despite their best efforts, good people can't overcome bad systems.

Also, these manual, analog sorting systems don't give managers visibility into productivity and accuracy data. It's difficult to assess overall process productivity as well as individual output. Plus, there's no data on this portion of the fulfillment pipeline to update end customers on shipping status.

Research shows that about one-third of warehouse workers spend more than [50% of their time doing tasks manually](#). Operations still reliant on manual systems are missing out on the benefits of automation, leading to rising labor costs and a struggle to keep pace with growing volumes and order complexity.

What are the options if your company wants to move away from manual processes but isn't ready for a full automation makeover? There's room for simple, robust options that get the job done. We call that strategic automation.

Strategic automation can help solve bottlenecks by improving efficiency and sorting accuracy. Solutions like sort to light and automated parcel sorting help take the guesswork out of the process. There's no need for complete automation—strategic automation solutions can help companies cost-effectively transition away from fully manual operations.

This paper will show you how to overcome bottlenecks in mail sorting and parcel handling operations using strategic automation to drive greater performance and efficiency.



|| What Are Sort-to-Light Solutions?

Sort-to-light solutions, also known as put to light, can help warehouse operators overcome bottlenecks from complicated sorting processes that are vulnerable to mis-sorts and training issues.

Light-directed sorting is visually based, intuitive, and easy to use. Basically, the systems use a light to direct a worker where to put or pick up the indicated item based on both location and the barcodes on the package. With a light indicating the proper location, workers don't have to take time to read labels and double-check each location. It's clear where the proper location is, saving workers precious seconds with each sort.

Engineering Innovation Inc.'s [LightSort sorting system](#) was designed for two primary functions:

- To sort mail pieces prior to sending them to the USPS.
- To sort Parcel Return Services (PRS) mail for items being returned to a specific vendor and track which container pieces are placed. The PRS system sorts pieces into Gaylord cardboard boxes and bins.

This parcel processing solution incorporates a hands-free ring scanner that will prompt the correct bin to light up when a worker scans the barcode on each package. For mail systems that use USPS bags, the light illuminates through the transparent bag.

The intuitive LightSort process requires minimal training and enables fast, efficient sorting that reduces the risk of mistakes while saving time and preventing the need to match labels to bins manually. LightSort will also recognize and reject packages scanned into the wrong cell.

Features include:

- Sort-to-light systems are language-agnostic and overcome language barriers—workers do not need to speak a specific language to use the system, making it easy for new or temporary employees to use. By contrast, most alphanumeric systems are not intuitive for someone who isn't well-trained on the system. It may take weeks for a new worker to memorize locations to be fully productive.
- The LED lights can be configured to mimic legacy systems or other customized needs to support existing staff without additional training. Up to three sorters can be supported with distinct light colors.
- Easy installation and integration. LightSort technology is hardware agnostic so that it can be installed on existing or custom racks. Plus, it enables you to move and reconfigure your racks and bins as your needs change. It's also easily integrated with other automation systems to reduce human error. In concert with automated systems like goods-to-person picking, LightSort can provide direction so workers put the correct item into the proper bin to fill a customer order, removing human error from the last critical step.
- The system is also software agnostic. It can be integrated into existing business logic using a Machine API (MAPI). Users can modify the logic as needed to change the sorting processes. The open API allows users' IT departments to connect with ERPs, order management systems, warehouse management systems, and other software.

The MAPI software development kit allows users to build integrations into their existing business systems while the LightSort product is constructed and installed so it can enter service quickly and with minimal disruption. The LightSort technology uses existing business logic and can provide data for analytics and management.

|| Integrating Sort to Light With Sorting Automation Solutions

Sort-to-light solutions are a perfect companion to sorting automation. As volumes rise, many warehouse and fulfillment facilities struggle with efficiency and service levels. A company relying on manual handling for processing, routing, labeling, weighing, and dimensioning packages has an opportunity to improve operations significantly.

Eii's [Chameleon Parcel-Processing Solution](#) is a low-impact, modular solution. Like its namesake, the Chameleon is entirely adaptable to its environment, seamlessly blending into its surroundings.

The Chameleon supports SLAM/SPA (Scan, Label, Apply, Manifest or Scan, Print, Apply) operations and end-of-the-line processing to ensure products are packaged correctly for customer delivery.

LightSort racks can be paired with mail sorters like the Chameleon, which will do a rough sort to the cell level and then refine the sort to comply with USPS and parcel carrier rules for better rates. A fine level of presort to a five-digit ZIP code level qualifies for greater discounts than the three-digit level.

The Chameleon can be integrated with existing systems through APIs and fits into legacy locations without modifications. The modular design allows users to start with basic capabilities at first and upgrade and expand as necessary. You can start with the scan and store application for package dimensions, for example, and then upgrade to labeling and other functionality, which is easily integrated into the system.

LightSort and Chameleon share a similar MAPI, which is customer configurable and integrates with existing systems. Users can revise business logic and create custom-defined barcodes and other configurable options.

Transitioning to automated parcel sorting delivers benefits across the enterprise, from HR to the CFO's office to the warehouse floor:

Speed of sorting is a crucial benefit, allowing warehouses to keep pace with peak season volumes without adding resources.

Cost savings come from labor resources as well as energy management in the facility. The Chameleon can replace multiple sorting desks, allowing portions of the warehouse to go dark. Less floor space is required for sort desks and moving products in the warehouse.

Service improvements relieve bottlenecks and optimize sorting to take advantage of postal service and parcel carrier discounts. At the same time, automation reduces human errors and ensures consistency for processes like labeling.



|| How to Unleash Your Warehouse's Hidden Potential

It's time to tackle those warehouse bottlenecks that are holding your warehouse back from being as efficient and profitable as it should be. Strategic automation can help unleash your warehouse's hidden potential through better productivity, greater accuracy, and deeper visibility into performance. At the same time, you can provide accurate, timely shipping information to customers.

The most significant sorting bottleneck is human error, which occurs when workers put mail pieces in the wrong sort location. Remediating this situation takes time and effort, which can lead to customer dissatisfaction. In fact, the shipper may only know the item was misrouted once the customer complains.

The simplicity of sort to light can vastly improve workers' speed. It does not require memorization, and workers don't have to search for the correct sort location.

With sort to light, workers can achieve much higher levels of accuracy with minimal training. In a high turnover environment, workers can be productive in minutes rather than hours or days of training.

Managers can use the sort data to monitor individual and cell sort throughput. Some managers even gamify productivity, creating friendly competition between shifts and co-workers.

With the information to and from the users' business systems, it's easy to integrate sorting data into end-user shipping information for more accurate, timely customer communication. For instance, you can track scanned pieces and identify which container they were placed in.

By embracing strategic automation, companies can go from a totally manual process where nothing is tracked to one that helps operators get pieces in the right spot and lets customers view data about packages coming to them.

|| Tame Your Warehouse Bottlenecks

Overcome the bottlenecks in your warehouse with strategic automation investments. Improve productivity, sorting accuracy, and customer communication by taking the guesswork out of mail sorting operations.

Users have reported dramatic productivity improvements, such as doubling mail sorting productivity or enabling two people to do the work of 10 or more in parcel sorting. Strategic automation allows you to overcome labor shortages and do more with fewer resources.

For more information on mail and parcel sorting automation with [LightSort Sorting System](#) or [Chameleon Parcel-Processing Solution](#), schedule a [demo with one of our operations experts](#).



AUTOMATION ADAPTABILITY WITH EII

When looking to remove bottlenecks from your sorting operation, it's critical to select adaptable and flexible automation options. You don't want to be limited to proprietary software and a rigid infrastructure.

Eii's [LightSort](#) is hardware and software agnostic so that it can be implemented practically anywhere with existing or customizable frames/infrastructure. It can be adapted to various parcel sizes and mail pieces, too.

With the basic lights and logic system in place, the sky's the limit in terms of creativity and adaptability to your situation. The lighting system is easily configurable to match legacy systems, reduce training time, or be customized for a particular situation.

Our [Chameleon](#) solution can adapt to odd-size or "ugly" packages for parcel operations. We can also work with you to configure the solution to accommodate oversized or overweight packages.





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