THE POST-PANDEMIC STATE OF E-COMMERCE:
IS AUTOMATION THE ANSWER?

IDENTIFYING HOW SORTATION AUTOMATION CAN ADDRESS
CHALLENGES FOR PARCEL PROCESSORS

EXECUTIVE SUMMARY

With a 31.8% increase in e-commerce sales in a single quarter in 2020 and a 44.5% increase in e-commerce sales from 2020 to 2021, parcel processors scrambled to meet market demand.*

The threat of not being able to meet necessary throughput goals or set drivers up for success was worsened by additional challenges generated from labor shortages, transportation costs, and increased consumer demand. While sales growth has slowed post-pandemic, pressures on fulfillment and delivery processes remain due to the unpredictable nature of what the industry will look like post-COVID-19. Parcel processors and retailers must determine how sortation automation can alleviate those challenges. If sortation is left unaddressed, they risk losing market share, revenue, and profitability.

Parcel processors and retailers can depend on automation partners to deliver an optimized solution that provides both financial and operational value. The right technology can maximize processing throughput, improve profitability, address labor concerns, and efficiently handle a challenging e-commerce package mix.

*U.S. Census Bureau: Quarterly Retail E-commerce Sales

THE STATE OF E-COMMERCE

Parcel processors and retailers understand the immense pressure related to delivery speed and reliability. A global pandemic only elevated this and piled on new challenges, including:

- **Labor shortages and retention**

- **Increased throughput demand**

- **Continued proliferation of package types**

- **Increased capital needed for new facilities**

- **Greater demand to shorten order-to-delivery time**

- **Pressures to increase or maintain profitability**

- **Uncertainty about post-pandemic growth rates**

E-commerce all-time growth records were broken in 2020 due to the pandemic, with a 31.8% increase in sales from Q1 to Q2 2020.* During this time, parcel processors attempted to continue to execute business goals and meet consumer demands. Pressures continue to mount on fulfillment and delivery processes due to the uncertainty of what a new normal will look like post-COVID-19.

A planned sortation automation strategy can help parcel processors and retailers face these challenges while meeting growth demands, achieving business goals, and preparing for the future. We hope this guide will provide insight into the opportunities of sortation automation and inspire you to create or improve upon your automation strategy.

INDUSTRY HEADWINDS
Post-pandemic Parcel Processing.

To determine the value that sortation automation can provide for you, it's important to dig deeper into the challenges facing parcel processors in this new normal.

EFFECTS OF THE PANDEMIC ON MANUAL SORTATION

⚠ **Lack of reliable labor**

⚠ **Pressures to sort more package volume faster than ever before**

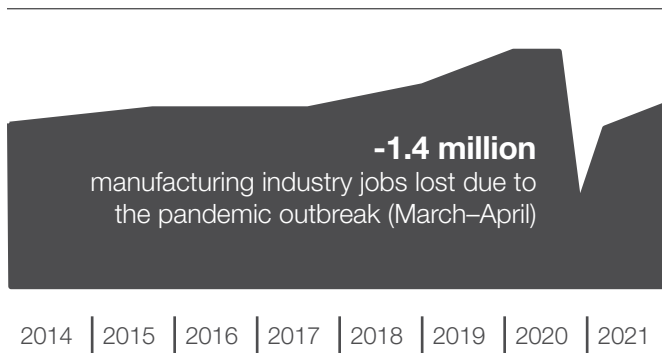⚠ **Overspending on labor and increased total cost of ownership (TCO)**

*U.S. Census Bureau: Quarterly Retail E-commerce Sales

Labor

While not specific to warehousing and e-commerce labor statistics, we can look at general manufacturing labor statistics to draw some conclusions. During the COVID-19 outbreak, the manufacturing industry lost roughly 1.4 million jobs. Of those, only around 820,000 have returned.**

-1.4 million
manufacturing industry jobs lost due to the pandemic outbreak (March–April)

2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021

- **570,000** jobs have not returned yet
- **820,000** jobs were recovered by the industry by the end of 2020

So why have 570,000 jobs not come back?

Workers are not only looking for new opportunities; they're seeking higher wages. Company loyalty has plummeted and attrition rates have soared as employees cycle through their positions, onboarding, training, then leaving for a new job. For these individuals, the work asked of them may be:
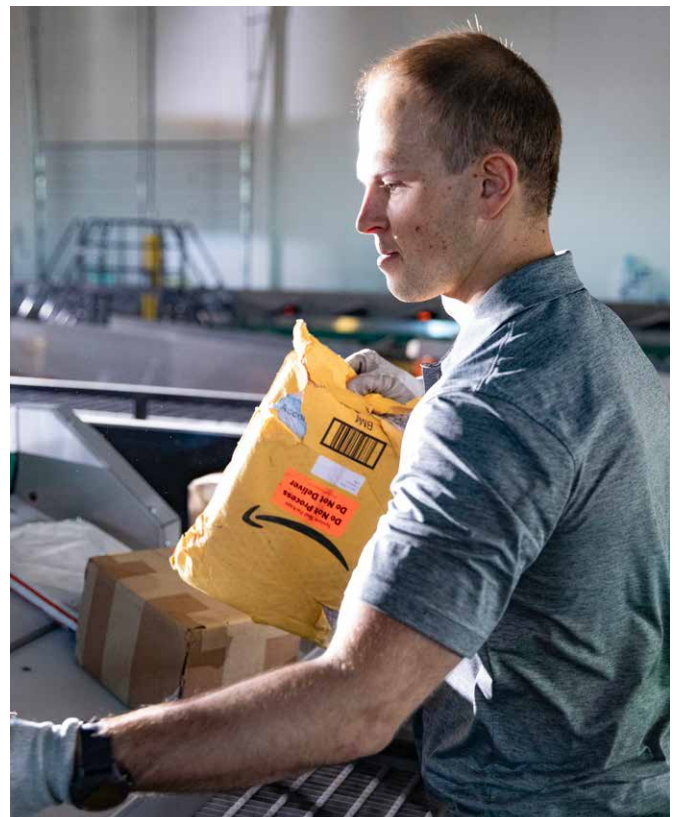
- **Physically demanding**
- **Repetitive**
- **Considered unsafe with poor working conditions**

With no idea when—or if—their workforces will return to pre-pandemic levels, parcel processors can look to sortation automation to reduce labor dependence while increasing operational efficiencies. When considering sortation automation, annual labor costs—and labor in general—are a critical metric to focus on.

Based on 100 packages sorted per man-hour, a lower-rate facility can require up to 15 manual operators at 10,000 packages per daily sort and range up to 115 at 80,000 packages per daily sort.***

Of course, there are ways to moderately increase efficiencies and reduce labor costs in manual sortation operations. However, when you consider the total annual labor costs your facility could save by implementing the right automation system, the value is impossible to ignore.

54% of manufacturers say hiring or retaining qualified workers is extremely challenging
– MHI, 2022 Annual Industry Report

**Based on data collected by MHI for the 2022 MHI Annual Industrial Report
***Based on analysis of internal proprietary data

Transportation Cost Trends

The costs associated with the services parcel processors deliver are expected and planned for, to an extent. The main transportation cost trends affecting parcel processors include:

- **Fuel cost instability**

- **Labor shortages**

- **Demanding consumer lead time expectations**

With these challenges, competing parcel processors are forced to create **clusters of warehouses and transportation hubs in the same geographical area**. These are typically positioned within 2–3 miles of one another, increasing demand for an already limited pool of drivers and laborers in a small geographic area.

Furthermore, new drivers are looking for a "day job." They're interested in processing their routes and going home. This means:

- **Shorter hauls**

- **Shorter routes**

Long-term, increased costs from shorter hauls and routes can have a major impact on the bottom line for parcel processors, especially when the costs associated with running these routes are increasing.

Consumer Demand

E-commerce growth is slowing, but the level of service and availability consumers have become accustomed to and expect has not. Retailers are challenged with offering the best selection of products at the lowest possible prices with the fastest delivery times.

> **51% of manufacturers say meeting consumer demands for faster response times is extremely challenging**
> – MHI, 2022 Annual Industry Report

To satisfy this consumer demand—and even outpace it—

parcel processors must rebalance their distribution networks with smaller operations closer to their consumer demand areas. This means:

- **Expanding microfulfillment centers**

- **Adding last mile facilities and delivery strategies**

With this increased consumer demand, consider your ability to sort the number of packages required per day. It's likely that your throughput per daily sort has increased. To determine your current capabilities and understand how your rates have changed or affect labor, answer these key questions:

- **How will you manage demand if it continues to grow?**

- **What are the current working conditions?**

- **Will current working conditions change with increased sorting demand?**

  - How will you retain employees when this happens?

- **Will enough labor be available?**

The answer to these questions will help you prepare for the future.

HOW DOES SORTATION AUTOMATION SOLVE THESE CHALLENGES, AND IS IT WORTH IT?

Once you understand your potential ability to meet this increased consumer demand and face the challenges outlined above, you can explore the value automation may provide you.

Increasing Throughput

The first critical, potential gain is an increase in the average number of packages sorted per man-hour. Smaller manual facilities can increase this rate by five times using sortation automation solutions. Larger facilities can double that, increasing their packages sorted per man-hour by as much as 10 times.****

5-10x INCREASED PACKAGES SORTED PER MAN HOUR

For manual facilities already equipped with enhancements like sort to light, additional sortation automation solutions have doubled sorting efficiency.

Addressing Labor

Fewer workers are required per daily sort when sorting efficiency is increased. The number of full-time employees is consistently reduced by 50–65% when adding sortation automation in manual facilities. Even in manual facilities with enhancements like sort to light, full-time employee dependency is reduced by 30–50%.

The number of full-time employees is consistently reduced by 30–65%.

In facilities where sortation has been automated, the labor pool has been reduced only to what is necessary to keep up with the growing demand in overall processing. Other critical savings include:

- **Less onboarding training required**
- **Lower strain on human resources department**
- **Improved working conditions**

Return on Investment

You can see an increase in ROI as a potential gain, especially when tied to your business drivers. Some drivers include:

- **Ability to offer competitive prices**
- **Ability to offer competitive service levels for delivery**
- **Maintaining a competitive inventory**
- **Enabling revenue growth by processing more package volume**
- **Improving profitability by reducing operating expenses**

The ROI calculation is an essential performance measure to evaluate if a sortation automation investment is worthwhile. This directly measures a payback period—typically in years—based on the cost savings from that specific sortation solution relative to the investment cost.

Having calculated direct returns from the increase in packages sorted per man-hour and the decrease in labor dependency relative to your sortation window, the sortation automation cost is the next key variable to weigh.

While the outcome can vary depending on the equipment chosen and your facilities, modern sortation automation solutions can achieve a positive ROI in 1.5–3 years. These systems are also well equipped to process **difficult-to-handle items** within the **full e-commerce package mix.**

****Based on analysis of internal proprietary data

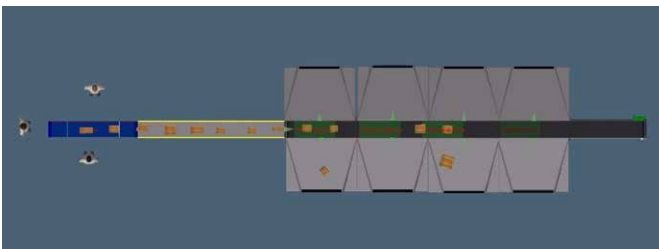## EXAMPLES OF SORTATION AUTOMATION THAT WORK

Intralox parcel processing experts know there is no one-size-fits-all automation model for the challenges you face. Below you will find a variety of solutions our experts have identified to meet customers' unique needs.

> # 64% of manufacturers are increasing supply chain investments
> – MHI, 2022 Annual Industry Report

Manual Induction to Automated Line Sorter

This method involves induction onto primary sorters—either automated or manual—that divert package flow to other areas within the building. Packages are then transported to an item sorter which provides specific locations for outbound delivery.

It is often used for lower daily sort quantities that only require a single area for sortation and item sorter.
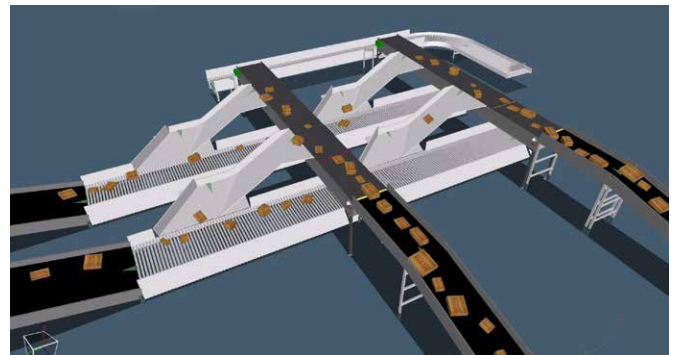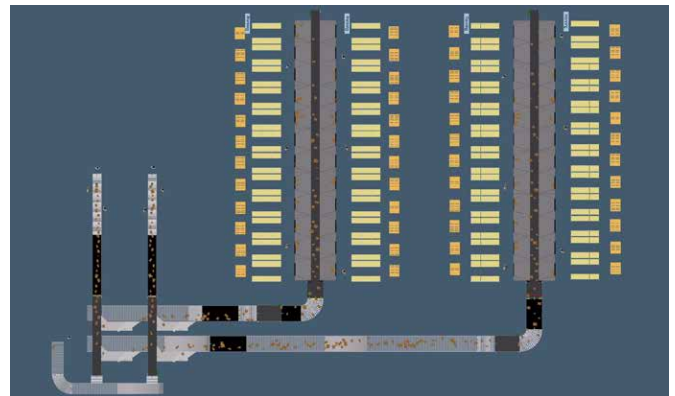

Induction to Automated Primary and Secondary Line Sorters

In this solution, workers manually place inbound packages onto a system that uses primary sorters to divert packages to other areas within the building.

Packages are then transported through a singulation process—either automated or manual—for preconditioning and onto secondary item sorters, providing specific locations for outbound delivery.

The solution is often used in more complex facility types with higher daily sort quantities requiring multiple sorting areas within the building, hence multiple item sorters.

Induction to Loop Sorters

A loop sortation system can be fed manually or automatically from a singulated flow of packages.

Packages are inducted onto belts or trays which circle continuously and sort packages to destinations at a high throughput rate.

OPTIMIZED SORTATION AUTOMATION SOLUTIONS

Rather than relying on traditional solutions that may fail to deliver both commercial and technical value, facility operations managers should consider the value sortation automation solutions bring to their challenges.

Intralox's global team of parcel processing experts can help you navigate the post-pandemic state of e-commerce. We have a deep understanding of the challenges you face every day, including labor concerns, transportation costs, and consumer servicing. From initial planning to post-project support, our experts are available to help you find the right sortation automation solution for your parcel processing facilities.

Contact Us