From Manual Chaos to Automated Efficiency:

A GUIDE FOR WAREHOUSE MANAGERS

Your strategic roadmap to understanding the need for parcel-sorting automation and making a seamless transition from a manual operation to an automated solution.

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‖ Introduction

Despite the hype surrounding automation, artificial intelligence, and other technological advances, many warehouses still rely on largely manual processes for everything from picking and packing to parcel sorting.

Experts estimate that 80% of warehouses have little to no automation, 15% have some automation, and 5% have implemented advanced solutions. (*Source: Mordor Intelligence, Warehouse Automation Market Size 2024-2029*)

With such a wide gap between early adopters and the rest of the industry, the market for parcel sorting automation in particular is expected to grow more than 17% through 2030, from $734 million to $2.3 billion. (*Source: Global Parcel Sorting Robots Market 2023-2030*)

That forecast is supported by the nearly 50,000 attendees—a new record—who joined more than 1,200 exhibitors at Modex 2024, MHI's annual conference for the material handling industry held at the Georgia World Congress Center in March. Companies are eagerly seeking automation information to gain a competitive advantage for their warehouse operations.

There's still plenty of progress to be made. Research indicates that about one-third of logistics workers spend more than 50% of their time on manual tasks. (*Source: nShift*) These warehouses are missing out on the benefits of automation, leading to rising labor costs and a struggle to keep pace with the growing volumes and complexity of the e-commerce boom. Without the right solutions and tools in place, companies face efficiency, profitability, and customer satisfaction issues.

What's keeping these operations from taking advantage of warehouse automation? Some obstacles are cultural, while others are operational.

First, resistance to change of any kind is a significant factor. "We've always done it this way" syndrome is very real.

Second, they are hindered by unclear perceptions of the role automation plays in removing bottlenecks and optimizing operations. The thought of tearing apart the warehouse to install a fully automated system may be overwhelming. But there are less intrusive options for targeted upgrades that won't bring the warehouse to a halt.

As the e-commerce channel becomes a more significant factor, companies are challenged to keep up with processing, routing, labeling, weighing, and dimensioning packages with manual processes.

With automation, warehouse operators can overcome their staffing issues by doing more with fewer resources. At the same time, automation can move high volumes efficiently with far fewer mistakes from mislabeling, mis-sorting, and other common failures with manual operations.

In short, **automation can move warehouse operations from manual chaos to automated efficiency.** This whitepaper will show you how to transform your warehouse with automated parcel handling and sorting solutions.

‖ What is Warehouse Automation?

Many think of automation as a lights-out warehouse full of robotic bins zipping around the floor and climbing racks without a human in sight. While that's close to reality for a few of the largest operations, there's a broad spectrum of automation alternatives for your situation.

Overall, automation in logistics refers to using control systems, machinery, and software to enhance operational efficiency. The goal is usually to reduce or eliminate the need for human intervention for processes performed in a warehouse or distribution center. Companies are investing in automation to deliver improved customer service, scalability and speed, organizational control, cost-effectiveness, and fewer mistakes.

Automation can be involved throughout the entire inventory process, from inbound receiving to putaway to parcel picking, packing, and shipping. Businesses can reduce or eliminate repetitive physical and data entry work for a more productive work environment with fewer resources.

Warehouse automation solutions encompass a wide array of equipment and technology, including:

- Automated storage and retrieval systems (ASRS)
- Autonomous warehouse robots
- Automated guided vehicles (AGV)
- Parcel sorting robots and systems
- Conveyors
- Warehouse management systems (WMS)
- Execution software
- Control systems

‖ What is driving the trend towards Warehouse Automation?

The two top driving factors for companies seeking distribution center automation solutions are the labor shortage and the e-commerce boom.

Competition for labor is heating up as wages and benefits rise due to inflation and minimum wage laws in many locations. The Bureau of Labor Statistics reports the turnover in warehouse positions has reached 50% in the past five years.

However, attracting and retaining workers is not a sure thing, even with increased compensation. Given the shifting priorities of the workforce, it's clear automation is imperative for sustainable growth.

The shift toward e-commerce applies additional pressure to the labor situation. Online retail typically requires more labor per item sold than traditional brick-and-mortar sales. Each item must be picked and packed individually rather than be delivered to stores in bulk. Without automation, it takes more labor to generate the same revenue, putting pressure on already stressed margins.

‖ Targeted Technology

Automation technology can be applied to address specific situations rather than a makeover of the entire warehouse. For example, Engineering Innovation, Inc. (Eii) has developed solutions to solve specific bottlenecks with automation to improve warehouse efficiency. Parcel handling and sorting solutions from Eii are not disruptive to overall operations, so the rest of the warehouse doesn't have to miss a step.

The Chameleon Parcel-Processing Solution (pictured above) provides modular parcel automation for any space. With it, a growing parcel operation can take advantage of an affordable automation solution that can shift or change according to volume or market requirements.

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.

Like its namesake, the Chameleon parcel-processing solution is fully adaptable to changing environments and blends into existing operations without causing a fuss. The modular design gives users customizable options such as:

- Sorting
- Dimensioning
- Labeling
- Barcode reading
- OCR reading
- Weighing

The Chameleon can be integrated with existing systems through APIs and fits into legacy locations without modifications. Here's how it works in action:

» One warehouse positioned a Chameleon to manage a sort for nearly 20,000 packages per day, requiring 24 people to process that sort manually. The Chameleon can manage the same volume with only four workers.

» After one peak season, another customer added the labeling function to a Chameleon sorter and reduced operating costs by 27% in the fourth quarter.

The modular design allows users to start with the capabilities they need and then upgrade and expand as necessary. For example, a company can start with the scan-and-store application for package dimensions and then upgrade to labeling and other functionality that's easily integrated into the system.

‖ How To Transition From Manual To Automated Warehouse Operations

Hundreds of companies have made the switch from manual to automated processes and developed hard-won best practices along the way. Here's an overview of the steps your automation journey should follow:

- **Evaluate automation solutions**
  Look for solutions that are flexible and can grow with your demands. These are often modular solutions rather than a rigid, complex system. The system should be able to evolve along with your business.

- **Assess the ROI factor**
  Automation can do many things, but you must evaluate the effectiveness of improvements compared to the investment and the payback time frame. One customer decided to buy the Chameleon because the ROI was less than two years. A flexible solution should be able to multitask across different functions, boosting ROI over time.

- **Choose a committed automated solutions provider**
  Look for support and services after the sale. It's critical to have support teams available to service the machine after installation. Your provider should help with preventive strategies such as identifying the right spare parts to keep on hand and offering preventive maintenance to service machines prior to peak season to ensure quality operations.

About 70% of Chameleon users take advantage of preventive maintenance programs to ensure machines are in top operating condition before the seasonal surge.

Your provider should also provide extensive documentation and training to ensure the machinery remains an asset to your operation and not a detriment.

What to expect from implementation

The installation timeline varies depending on the scope of the project and the complexity of the equipment. For the average single piece of equipment, 8-10 weeks is a typical timeline.

Automating in stages based on the most prevalent pain points is the recommended strategy. That way, you can focus on one aspect of your operation without disrupting the rest. Once the equipment is fully integrated into the process and your workers are comfortable, you can move on to the next pain point. Trying to take on too much at once is a recipe for frustration.

Ensure the automation solutions you're considering can be integrated into existing technology, like warehouse management or order management systems. You don't want to find out at the last minute you need to upgrade warehouse data systems or reconfigure the rest of the parcel pathway.

How automation works with the Chameleon

The process begins with an analysis of the pain points in your warehouse. Eii focuses on solving specific bottlenecks rather than optimizing the overall operations. The bottleneck is typically a manual processing station that requires a lot of manual labor or otherwise represents a constriction in the workflow.

The Eii team will observe operations to see what's happening on the warehouse floor and how processes are handled during work shifts. The aim is to develop holistic solutions that solve your parcel shipping challenges and deliver real results.

Eii's solutions are hardware-agnostic with respect to existing solutions. The Eii system can integrate with existing warehouse management software, either with an existing API or a custom software solution built with an SDK. The modular systems can be installed quickly without disrupting other warehouse operations.

IMPROVING WORKFLOW WITH AUTOMATION

One cross-border e-commerce shipper called on Eii for help with its growing volume of international parcel shipments in a labor-constrained environment. The company manually processed, routed, labeled, weighed, and dimensioned packages from 40 to 50 processing stations in its facility.

The Chameleon scalable, modular system was easily adapted to the shipper's existing space and workload requirements. It immediately improved workflow and gave the company the option to adapt as parcel volumes and/or market requirements change.

Before the Chameleon, the company handled 200 pieces per hour per person. After installation, two people now manage 2,400 pieces per hour.

Many installations start with essential sorting functions and can be upgraded as needed. The modular systems mean new capabilities can be added with minimal downtime.

The Eii team will advise on spare parts inventory and maintenance schedules. Service contracts are available to ensure the machines receive preventive maintenance for maximum uptime.

The installation schedule runs eight to 10 weeks from the time of order to full functionality.

‖ Benefits of Warehouse Automation

Let's address the bottom line: Does investing in automation deliver results? Leading companies that have automated their warehouse processes report 20% to 50% improvement in service levels while lowering fulfillment costs by 25% to 50% at the same time. *(Source: BCG 2024)*

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

Speed
The speed of automated sorting helps busy warehouses keep up with peak season demands. In one warehouse, a Chameleon solution ramped up manual sorting from 200 pieces per hour to 2,400 pieces per hour with 80% fewer people.

Cost savings
While lower labor costs are an obvious gain, automation can reduce costs for utilities in the warehouse, too, as lights can be dimmed in different sections. A Chameleon can replace six to 10

sorting desks, reducing operators and power consumption and freeing up floor space for other uses.

Eii customers commonly report that operating costs are down 15% to 25% after a Chameleon installation. Depending on the operation, the ROI for a Chameleon may be 18-24 months.

Service-level improvements
Relief from bottlenecks and pain points helps improve optimization throughout the distribution process. Using the shipper's business logic, parcels can be routed through multiple postal sorting levels to take advantage of postal service and parcel carrier discounts.

Automation reduces human errors during processes like labeling so the label can be applied consistently in the right spot.

‖ Tame Your Sorting Chaos

Automation is the way forward for a warehouse to remain competitive. Staffing challenges are here to stay, and the shift to e-commerce will only accelerate. Rather than investing in a complete conversion to automation, focus on attacking critical bottlenecks with scalable solutions that adapt as your company evolves.

Work with an automated parcel handling provider that offers automation and manifesting solutions for letters, flat packages, and parcels backed by deep experience in site-specific process evaluation to optimize your company's throughput and destination accuracy.

For more information on parcel sorting automation with the Chameleon Parcel-Processing Solution, schedule a demo with an operations expert.

OVERCOME "UGLY" PACKAGES

Ugly packages are the bane of any warehouse. They're big and bulky, odd-shaped, or enclosed in a poly bag. Unless your warehouse has a Chameleon parcel processing solution, these items often require manual or specialized handling.

The Chameleon's greatest advantage in handling "ugly packages" is its totally modular and adaptable system. It can be customized to adjust the height of the dimensioning box for tall packages or the weight limit for oversized loads.

The new Shuttle Divert or divert module was created for polybagged items to overcome diversion problems. The air spaces in the polybags settle and don't move along the rollers, so the bags may miss the scanners.

The new Shuttle Divert allows the bags to move along the conveyor seamlessly so they can be scanned and diverted to their final destination with little to no rejects or manual input.

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