FORTNA

Thought Leadership Series

On-Demand, Right-Sized Packaging Automation: Benefits for Today's Fulfillment Operations

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As labor challenges persist, shipping costs rise and sustainability expectations intensify, companies can no longer afford bottlenecks, excess waste or inconsistency at the final stages of order fulfillment.

Packaging automation has rapidly evolved from a "nice-to-have" efficiency upgrade into a mission-critical capability for modern distribution operations.

Packaging is where cost, performance and sustainability outcomes are either optimized or lost. Organizations that modernize packaging processes unlock measurable savings across labor, materials and shipping while also positioning themselves to meet tightening environmental requirements and lowering the cost per unit (CPU).

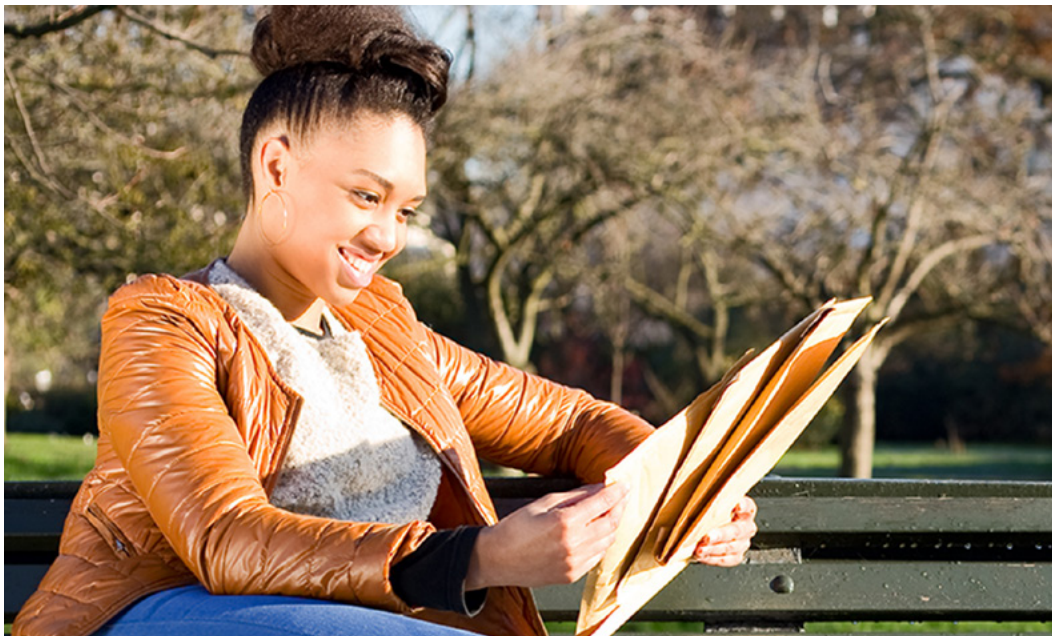
In this Insight, we explore why right-sized packaging automation is now a determining factor for long-term success and how FORTNA can help you gain a competitive edge with end-to-end packaging automation solutions.

What is on-demand, right-sized packaging automation?

On-demand, right-sized packaging automation refers to the systems and technologies used throughout warehouse fulfillment to create, pack, seal and label orders ready for shipment.

These solutions automate key processes such as:

- Right-sizing boxes and mailers to fit each order, saving up to 30% in material usage for corrugated boxes[1]
- Automated wrapping, sealing and labeling
- Right-sized corrugated packaging for a wide range of product dimensions, including larger or variable-sized items, with 40% or more average package size reduction[1]
- On-demand printing and documentation



Types of on-demand packaging automation

There are two types of on-demand, right-sized packaging automation: mailers and corrugated boxes.

Together, these solutions provide the flexibility required to handle diverse order profiles and SKU variability.

[1] https://www.packsize.com/

Mailer packaging automation

Mailer packaging automation is an automated system used at the end of the fulfillment process, where small- to medium-sized items are wrapped, sealed and prepared for shipment in right-sized paper mailers.

The FORTNA/Sitma solution enables high-speed, automated end-of-line packaging that dynamically adjusts to each item's dimensions. Orders are fed into the system, where packaging is created, sealed and labeled in a continuous flow, minimizing manual handling and reducing variability. Mailer automation is ideal for e-Commerce and operations with a high volume of small, fast-moving items.

These systems:

- Adjust packaging dimensions dynamically
- Reduce material waste and shipping costs
- Eliminate excess packaging
- Increase throughput while reducing required labor

Corrugated packaging automation

Corrugated packaging automation focuses on creating custom-sized boxes tailored to each order's exact dimensions.

The FORTNA/Packsize solution produces right-sized corrugated boxes on demand, eliminating the need for pre-sized box inventories and reducing reliance on void-fill. Each box is custom-formed and cut to the correct dimensions. Then, it can be automatically packed, sealed and labeled through integrated downstream systems. Corrugated box automation is especially valuable for operations handling a wide range of product sizes or multi-line orders, where right-sized packaging improves protection and presentation.

Benefits include:

- Precise fit for every order
- Optimized labor, even for oversized and fragile items
- Integration with warehouse execution and picking systems to enable efficient, right-sized packaging workflows
- Reduced corrugated material usage and costs
- Lower dimensional shipping charges and cost per unit
- Improved product protection and presentation

Why packaging automation is no longer optional

Several industry shifts and amplified challenges have made packaging automation essential rather than optional.

Rising labor costs and workforce constraints
Manual packaging is labor-intensive, repetitive and increasingly unsustainable, especially during peak periods when labor is hardest to secure. In an environment where labor can represent up to two-thirds of total costs, relying on manual processes can introduce additional inefficiencies and risk.[2] Automation reduces labor costs and requirements while dramatically improving productivity, consistency and accuracy.

Increasing SKU complexity
As product assortments expand, SKU counts and operational complexities rise rapidly across distribution operations. More variations in size and shape create additional operational challenges. Flexible systems are essential to adapt to this variability, enabling operations to maintain speed and efficiency even as product diversity increases.

Higher customer expectations
Today's consumers expect every order to arrive on time, accurately and damage-free. When delays, errors or damaged shipments occur, the impact is immediate. In fact, up to 80% of customers won't return to a business after a poor delivery experience.[3] Ensuring packaging quality, accuracy and consistency is critical for operational performance and for protecting customer satisfaction and long-term brand loyalty.

Sustainability pressure
New regulations and rising consumer expectations are accelerating the shift toward more sustainable packaging. Nearly two-thirds of consumers say sustainable packaging influences their purchasing decisions, while many actively avoid products with excessive packaging.[4]

At the same time, global regulations and new policies across multiple U.S. states are requiring organizations to take greater accountability for packaging waste, recyclability and material use. Together, these forces are pushing companies to reduce excess materials, eliminate waste and improve overall environmental performance.

[2] https://www.automatedwarehouseonline.com/delaying-automation-has-hidden-costs-explains-brightpick/

[3] https://www.opensend.com/post/shipping-accuracy-statistics

[4] https://www.mckinsey.com/industries/packaging-and-paper/our-insights/sustainability-in-packaging-us-survey-insights

Key benefits of on-demand packaging automation

1. Lower labor costs
Automated systems optimize repetitive manual packaging tasks, significantly reducing labor requirements and resources. Teams can be redeployed to higher-value activities while minimizing reliance on temporary or seasonal labor.

2. Increased throughput and efficiency
Automation removes bottlenecks at manual packing stations, enabling a continuous, predictable flow of orders. Operations can increase daily shipping volumes without adding labor or expanding footprint. In addition to end-of-line fulfillment, facilities can boost efficiencies and reduce touchpoints across other workflows by integrating with automated picking technologies, like goods-to-person (GTP) systems, autonomous mobile robots (AMRs) and conveyance solutions.

3. Minimized material usage and waste
Right-sized packaging dramatically reduces material usage by creating boxes or mailers tailored to each order. This eliminates the need for excessive void fillers by up to 80% on average, minimizing material waste and costs with every shipment. These solutions also free up valuable warehouse space by reducing storage areas and packing stations.

4. Reduced shipping and transportation costs
Smaller, right-sized packages take up less space, allowing more orders to be shipped per truckload. This leads to lower parcel shipping costs, reduced dimensional weight charges and improved transportation efficiency.

5. Improved accuracy and fewer errors
Traditional packaging processes are extremely labor-intensive and time-consuming, with operators sizing, selecting and constructing the packaging. This runs the risk of slowing productivity and leaving room for human error. Automated labeling and packaging standardization minimize human error, reducing mis-shipments and returns while protecting brand reputation.

6. Energy savings and operational efficiency
By streamlining the packaging process, organizations lower energy use per order while improving overall system performance. Packaging automation reduces energy consumption by requiring less material production and handling while also reducing inefficiencies, rework, conveyor congestion and idle time.

7. Sustainability compliance improvements
Packaging automation supports sustainability initiatives by minimizing material waste, enabling recyclable packaging and reducing empty space in shipments. As more states, territories and nations get on board with packaging regulations, it's evident that facilities need to take a proactive approach to sustainability.

How on-demand packaging automation improves product flow

Manual packing stations are one of the most common sources of inefficiency in distribution operations. When packing cannot keep pace with picking, it creates bottlenecks that ripple across the entire system, slowing throughput and increasing labor and energy usage.

Automated packaging systems synchronize and integrate with upstream processes and technologies, enabling:

- Continuous flow of goods
- Reduced congestion
- Higher system-wide efficiency

The result is a faster, more balanced operations with lower overall cost per order.

How FORTNA helps optimize end-to-end packaging automation solutions

As a system integrator, FORTNA takes a consultative, data-driven approach to packaging automation, starting with your operation, not the equipment.

Rather than prescribing a one-size-fits-all solution, FORTNA evaluates your current processes, existing equipment, order profiles, SKU mix and cost drivers to uncover where packaging is creating inefficiencies, bottlenecks or unnecessary spend.

From there, we design a solution aligned to your specific performance, cost and sustainability objectives. We combine this consultative expertise with a strong partner ecosystem, including packaging automation leaders like Packsize and Sitma, to deliver the right-fit technology for your operation.

From concept through implementation and lifecycle support, FORTNA focuses on outcomes, ensuring your packaging automation investment delivers measurable performance improvements, with a return on investment (ROI) realized in as little as six months.

Companies that invest in automation gain a clear advantage. On-demand, right-sized packaging automation is one of the most powerful levers for reducing cost and improving performance across the entire operation.

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FORTNA CAN HELP

Connect with our experts today to evaluate your current processes and discover how automated packaging can strengthen efficiency, performance and long-term resilience.

Contact us today at **www.FORTNA.com**

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