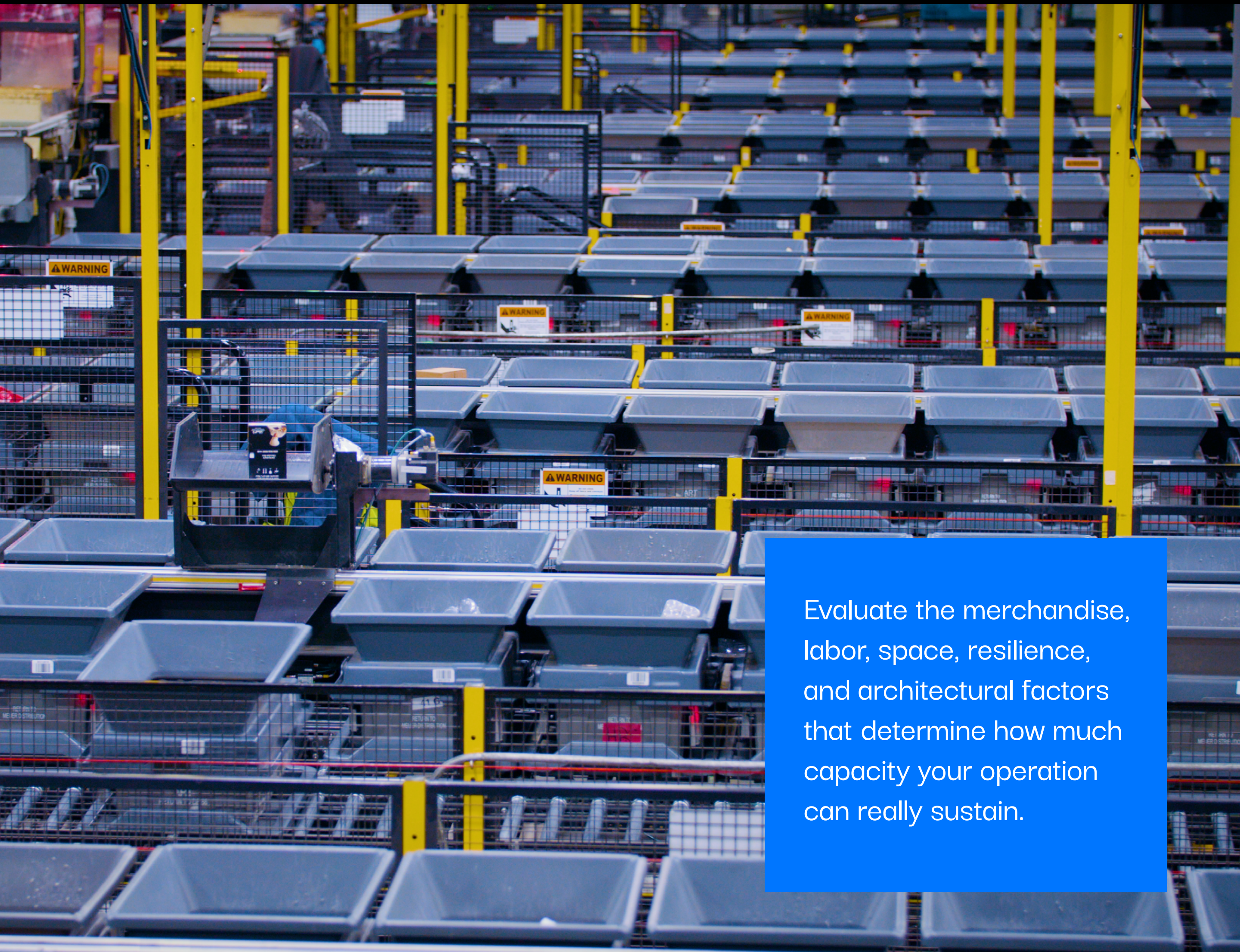


Closing the Capacity Gap

A practical guide to evaluating robotic sortation for greater throughput, flexibility and long-term value.



Evaluate the merchandise, labor, space, resilience, and architectural factors that determine how much capacity your operation can really sustain.



BERKSHIRE
GREY®



The right process helps a sorter reach its full potential.

When your throughput requirements increase, a faster sorter may seem like the simplest way to add capacity.

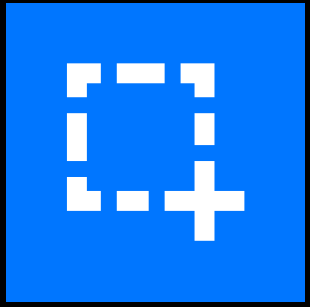
But sortation throughput is based on a set of defined conditions. Actual performance also depends on how consistently items enter the system, destination availability, takeaway speed and exception handling.

These factors create a gap between the capacity a sortation system can deliver on paper and the output the operation can consistently achieve.

Closing that gap starts with looking at the entire sortation process. The evaluation should show how effectively the sortation system uses labor, space, and time to sort merchandise and whether it can maintain that performance as conditions change.



Real capacity is what the entire sortation process can consistently achieve.



Evaluate capacity across the complete flow.

Every stage of the sortation process affects output. Merchandise must reach the system, be suitable for the equipment and move smoothly through induction, sortation, completion and takeaway without creating another bottleneck.

The fastest sorter adds little value if the surrounding flow cannot keep pace.

Start with the merchandise you move

Retail assortments vary widely in size, weight, surface, rigidity and packaging. Merchandise the system cannot handle must be sorted through a separate process.

These exceptions can require additional labor, workstations, floor space and training. They can also complicate planning and make service levels harder to predict. If excluded items ship separately, they may increase the number of shipments and, ultimately, transportation costs.

Measure how much of the actual unit volume the sortation system can handle, not simply the number of SKUs handled in a demonstration. Test a realistic mix of merchandise and order volume, including seasonal variation and the items most likely to challenge the system.

The goal is to keep the entire merchandise mix moving through one reliable, efficient process.

Follow work through induction and completion

Induction capacity depends on the entire process, not just station speed. Work must arrive consistently, merchandise must be identified and introduced quickly, and the system must handle the operation's actual mix of single- and multi-unit merchandise.

Sort destinations must also remain available.

When full containers are not removed quickly or downstream takeaway falls behind, the sortation system loses capacity one destination at a time.

The equipment may still be running while completed output declines.





Follow the work beyond the sortation system.

A credible evaluation should include every task required to move an item from induction to a finished outbound container.

Labor savings within the sortation system can be offset by work created elsewhere:

- Walking between destinations
- Scanning and monitoring merchandise
- Replacing or closing containers
- Clearing blocked destinations
- Handling exceptions
- Staging completed containers
- Repacking or reconciling excluded items

Measure the time spent handling items separately from time spent walking, waiting or supervising. Moving labor to another point in the process does not eliminate it.

Evaluate space the same way. The operating footprint includes induction, destinations, conveyance, staging, exception handling, takeaway and maintenance access, not just the equipment.

This distinction matters in existing facilities, where columns, mezzanines, conveyor elevations and established material flow determine how much of the theoretical layout the operation can use.

Compare usable throughput per square foot and per labor hour across the complete process.





Determine how well capacity holds up.

Operations change over time and may no longer match the original design assumptions.

Merchandise mix changes. Channels compete for capacity. Destination requirements shift. Labor availability varies. Peak periods alter the balance between induction, sortation and takeaway.

Evaluate performance across a range of operating conditions, not against just one ideal scenario. The analysis should show how changes in product mix, volume, staffing and destination demand affect output.

It should also show what happens when part of the system is down.

Uptime percentages do not tell the whole story. Two systems may have similar uptime, but a failure could stop one part of the operation, or the entire system depending on which components they share.

A useful resilience analysis should explain:

- What stops and what keeps running
- Whether work can be redirected
- Which destinations and routes remain available
- How much capacity remains
- What operators must do to fix the issue
- How the system returns to normal operation

Resilience is more than uptime. It is the ability to keep work moving when part of the system is unavailable.



Understand what expansion requires.

Long-range forecasts create a difficult choice: invest in extra capacity years before it is needed or risk outgrowing the original system.

A flexible growth plan allows capacity to increase as demand grows. Sizing the initial system for current needs can preserve floor space and capital for future priorities, giving the operation more room to adapt as requirements change. But “modular” does not always mean easy to expand.

Expansion may still require more floor space, utilities, additional conveyance, structural changes, software updates or production downtime. Understanding these needs helps determine whether the sortation system can scale easily or will require a major rebuild.

IDENTIFY EACH WAY THE SORTATION SYSTEM CAN ADD CAPACITY:



Faster merchandise movement



More induction points



More destinations



Additional modules or operating zones



Greater downstream takeaway and packout

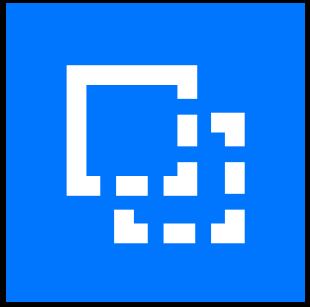
These elements may not need to expand at the same rate. Identify which can expand independently and what could limit capacity at each stage.

Also consider how long expansion will take and how it may disrupt operations. Added capacity cannot protect service if demand increases before the expansion can be installed, tested and ready to use.

Build for Today's Capacity and Tomorrow's Growth

A scalable system supports expansion without requiring excess capacity on day one.





Account for the operation around the sortation system.

A sortation system must work with the facility and technology around it.

Product flow, container standards, WMS and WCS logic, downstream takeaway and installation requirements can affect performance as much as the sorter itself.

In an existing facility, columns, ceiling height, mezzanines, conveyor elevations, maintenance access and ongoing operations may limit the layout.

Map every connection and handoff before choosing a sortation system.

- **Upstream flow:** Confirm how inventory arrives, whether it needs buffering or sequencing, and how consistently it reaches induction.
- **Destination and takeaway:** Define how containers are assigned, completed, removed and moved to packing or outbound conveyors.
- **System connections:** Identify standard WMS, WES and WCS connections, configurable rules and any custom development.
- **Deployment and ownership:** Define what is required for installation, testing and launch—and who is responsible for monitoring, support and recovery after go-live.

The best sortation system may still require some changes. The right fit keeps the workflows that work, clearly identifies necessary changes and avoids costly redesigns that do not improve the operations.





Build the business case beyond direct sortation labor.



Don't compare sorters on equipment performance alone. Compare how each option affects the entire fulfillment operation.

Direct sortation labor is only part of the business case.

System design can change exception handling, walking, monitoring, training, packaging, container handling, transportation, store receiving, space requirements and impact of downtime.

Measure these effects. Don't make assumptions.

Operating costs: Include induction, walking, takeaway, exception handling, training, supervision, maintenance and support.

Capacity and space: Measure gains in completed output, throughput per square foot and the useful life of the existing facility.

Packaging and downstream handling: Include cartons, packing materials, closing, conveyors, transportation and receiving.

Capital timing: Consider whether capacity can be added in phases and whether a larger facility investment can be delayed.

Operational risks: Account for downtime, backlog recovery, missed cutoffs and changes in demand.

Connect every benefit to a measurable result. For example, increased carton fill can reduce the number of cartons purchased, packed, moved, shipped and opened. Higher throughput in the same space can free room for other work or delay the need to expand the facility or move to another facility.



Why architecture matters.

Once the operational requirements are clear, architecture becomes a meaningful point of comparison.

Different sorter architectures organize movement, capacity and dependency in different ways. Those choices affect routing, footprint, failure behavior and what future expansion requires.

FIXED-PATH ('LOOP') SORTATION

Traditional conveyor-based sorters move items along shared, predetermined routes. They can deliver high throughput for stable flows when the system is appropriately sized and the merchandise fits the application.

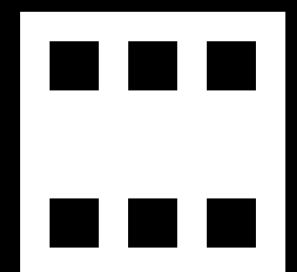
Movement depends on shared infrastructure, which can create a single point of failure. If a conveyor or drive that all items rely on stops, the entire flow may stop unless an alternative route is available. Adding capacity may require extending or duplicating that infrastructure, increasing space requirements and implementation work.



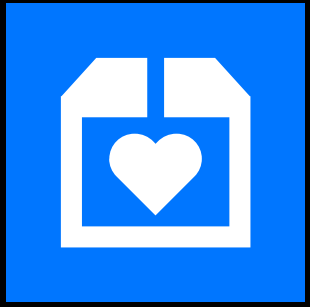
PARALLEL ROBOTIC SORTATION

Robotic shuttle systems use multiple software-directed carriers to move items independently and in parallel. Movement capacity, destinations and modules can be configured and expanded differently, while work is distributed across available routes.

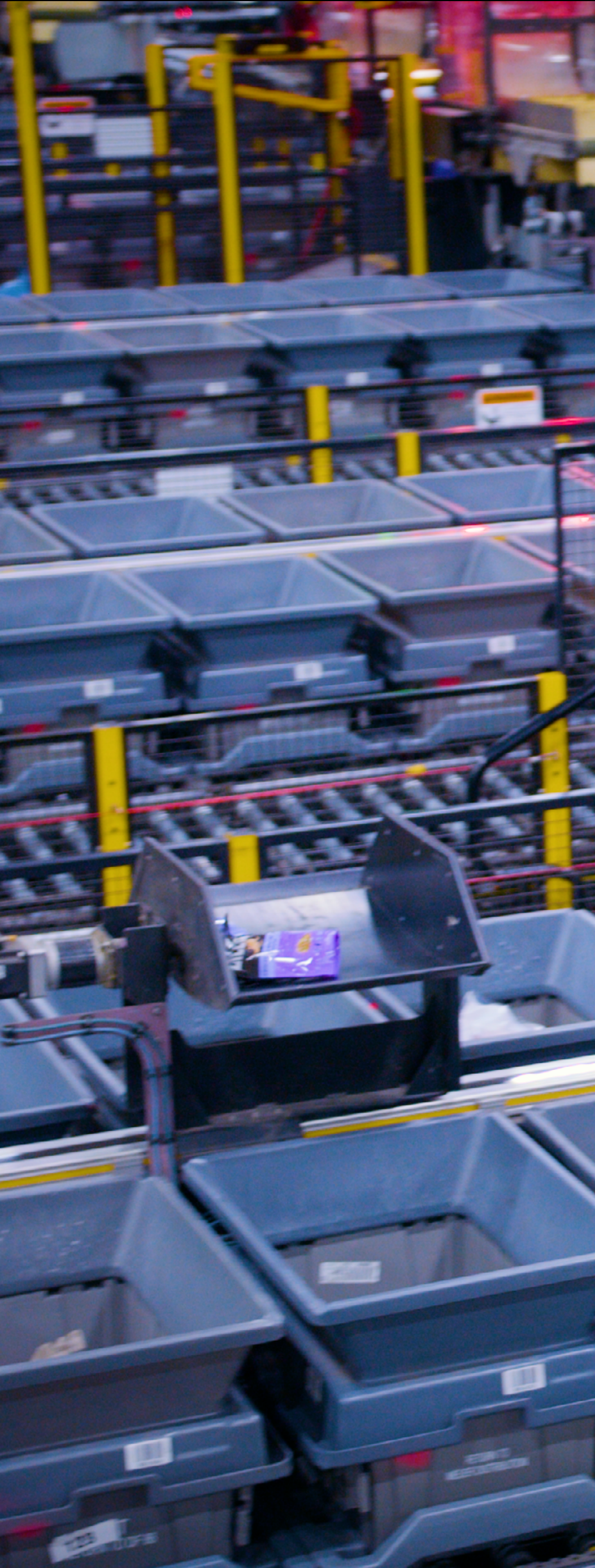
When one shuttle is unavailable, other shuttles may continue working. Redundancy depends on whether available carriers and routes can take over the affected work. Check for shared dependencies in induction, takeaway and controls that could still interrupt the wider system. Performance also depends on destination availability, software integration and the merchandise itself.



Choose the sortation system that best fits the operation's requirements, not simply the highest rated capacity.



A more adaptable approach to sortation.



Meet BG Stride™

Berkshire Grey's Stride Shuttle Sorter is a flexible, fully integrated system that uses independent robotic shuttles to sort individual items into store shipments or customer orders.

Workers or robots load merchandise at induction stations. Robotic shuttles move items to the correct destination while the system manages many orders at the same time. When an order or carton is complete, Stride automatically sends it to packout. Sophisticated software routes items and orders efficiently, and continuously monitors and optimizes operation of the entire sortation system.

STRIDE IS DESIGNED TO:

- **Automate more merchandise:** Stride handles challenging items, including small items that roll, loose or unbagged merchandise, and selected bulky or irregular items. This broadens coverage across general merchandise, health and beauty, homewares and apparel.
- **Use space more efficiently:** Stride's parallel shuttles and compact layout help increase capacity within the existing facility, with demonstrated footprint reductions of approximately 50% compared with traditional conveyor-based sortation systems.
- **Reduce labor needs:** Multi-unit induction, automatic takeaway, robotic induction, and less walking help increase output per labor hour.
- **Scale with demand:** Induction capacity and destinations can be added as requirements grow without interrupting ongoing operations
- **Keep work moving:** Independent modules and shuttles allow unaffected parts of the system to continue operating during maintenance or localized interruptions.



More throughput. Less space. More merchandise automated.

Proven through more than five years of operation at numerous production sites for multiple customers, Stride delivers:

~50%
footprint
reduction

99+%
accuracy

+25%
SKU eligibility
vs traditional
sorters

Compared to traditional conveyor-based sortation and retail put module systems.

“Stride helps retailers automate more of their merchandise, increase capacity within their existing space and scale as demand grows, without overbuilding on day one.”

- Leonardo Bellodi, Principal Solutions Architect

Test Stride for your operations.

Evaluate how your merchandise, labor, space, system connections and future needs affect actual output. Then identify the process and system design that can deliver the capacity you need. **The right sortation system decision starts with understanding your operation.**

READY TO EVALUATE YOUR SORTING OPERATION?

Berkshire Grey can help assess your merchandise mix, workflow, facility and growth plans to determine whether Stride offers the right path forward. **Learn more »**

[BOOK A DEMO](#)