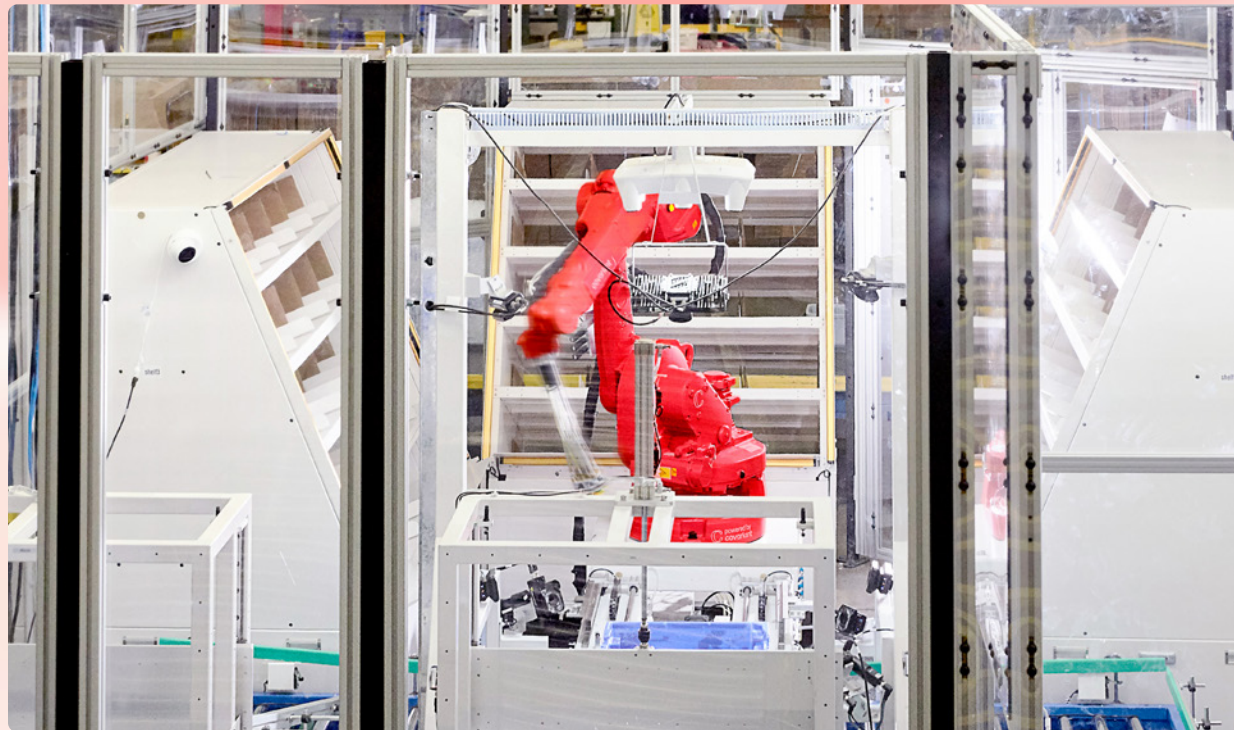


- 2023 robotic automation outlook

Will retail try a new approach to material handling in 2023?



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Introduction

It's been nearly three years since the pandemic toppled the global supply chain, forcing retailers to find ways to minimize the effects of disruption while managing unprecedented online shopping behavior.

Even in 2023, retailers are still feeling the pressure as pandemic supply chain challenges linger. But the industry faces yet another obstacle: soaring inflation rates and a softening economy. Historically, a looming economic downturn has translated to more controlled consumer spending and resulting consumer-business slowdowns in terms of

hiring, marketing spend, and investments in technology.

But has COVID-19 changed that? Many signals indicate that consumer spending is more resilient than you might think.

Retailers are operating in a new post-pandemic era unlike anything we have seen before. Costs and bottlenecks are increasing at the same pace as consumer expectations for real-time delivery of online and app purchases — thrusting material handling into the spotlight as a make-it-or-break-it capability.

Given the tumultuous environment before us, how will retailers respond?

Will retailers follow the path of predictability when it comes to operating in the face of economic uncertainty? Or will they invest in material handling strategies that enable them to end this period stronger, more resilient, and more profitable than ever before?

Based on a survey conducted by [Covariant](#) and Supply Chain Dive, this report unveils what more than 150 of the leading logistics and retail executives anticipate in 2023.

Respondents revealed their automation and material handling struggles over the past

few years, as well as the challenges and opportunities they foresee in the year ahead, how they plan to move forward, and the technology investments they'll make to bring their goals to life.

Executives say they have strategies in place to navigate changing market conditions and evolve fulfillment operations to create a competitive advantage. Many are choosing to deploy automation solutions, such as artificial intelligence (AI) Robotics, that optimize efficiency and revitalize the eCommerce customer experience.

The exclusive data in this report offer valuable benchmarks to help you adjust your business strategy plans and track where the industry is going so you can get — and stay — ahead.



Where have we been and where are we going?

During the height of the pandemic, from March 2020 to March 2022, retailers quickly pivoted to navigate uncharted territory that involved factory closures, shipping delays, and labor shortages. From ordering to fulfillment, they altered nearly

every aspect of their businesses and made hard decisions about their operations. **During that time, logistics and retail executives say they experienced four significant challenges that hindered their material handling efforts.**

1 Supply chain disruptions

Nearly half (**49%**) of logistics and retail executives surveyed ranked supply chain disruptions and bottlenecks as their primary challenge between 2020 and 2022. From small shops to big-box stores, retailers were united in feeling the effects.

2 Dependency on human labor

A high level of dependence on human labor also ranked highly on the list of challenges (**42%**). A labor-first approach to material handling and logistics negatively affected productivity and increased costs, particularly in a labor market where job openings were plentiful but available workers were scarce.

3 Uncertain economy

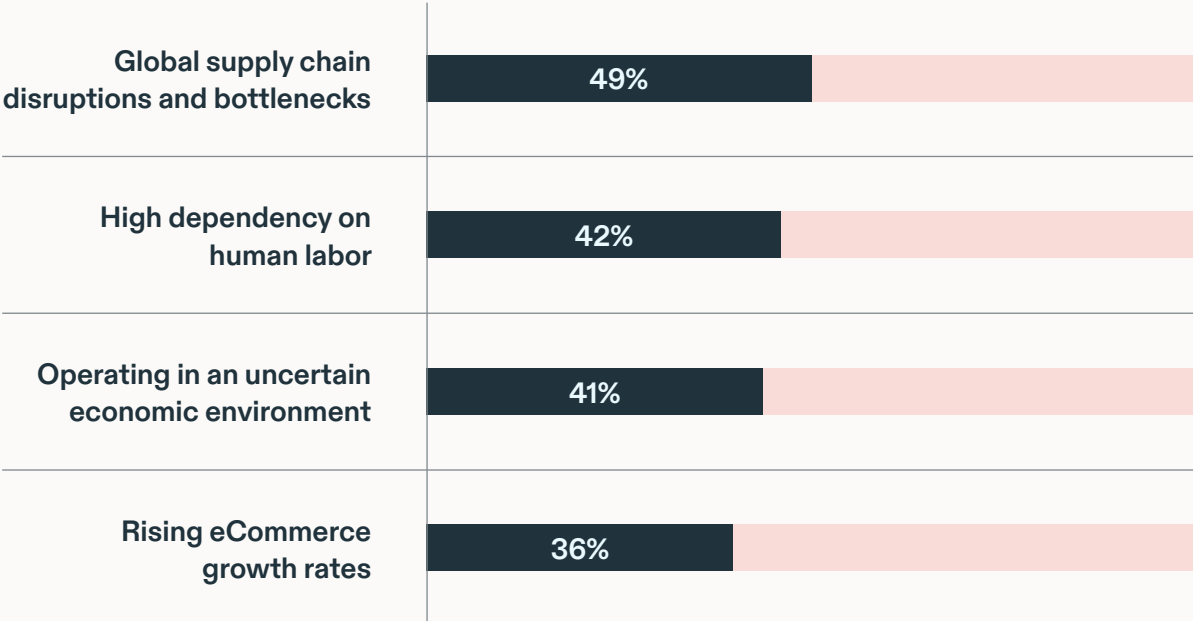
Two in five (**41%**) respondents identified the uncertain economic environment as a challenge. Lacking the ability to predict and plan for the future, retailers were left in a responsive position when it came to navigating new types of purchasing behavior, prioritizing eCommerce, and maintaining a strong command over inventory management.

4 Rising eCommerce growth

More than one-third (**36%**) of logistics executives indicated that rising eCommerce growth rates created challenges. Online retail sales grew substantially in 2020, 2021, and 2022, which drove retailers to explore new strategies for managing material handling and logistics.



Q: What were the biggest material handling challenges the industry faced during COVID-19?*



*Respondents could select multiple choices

Executives still struggle with COVID-19 era challenges — only with a twist.

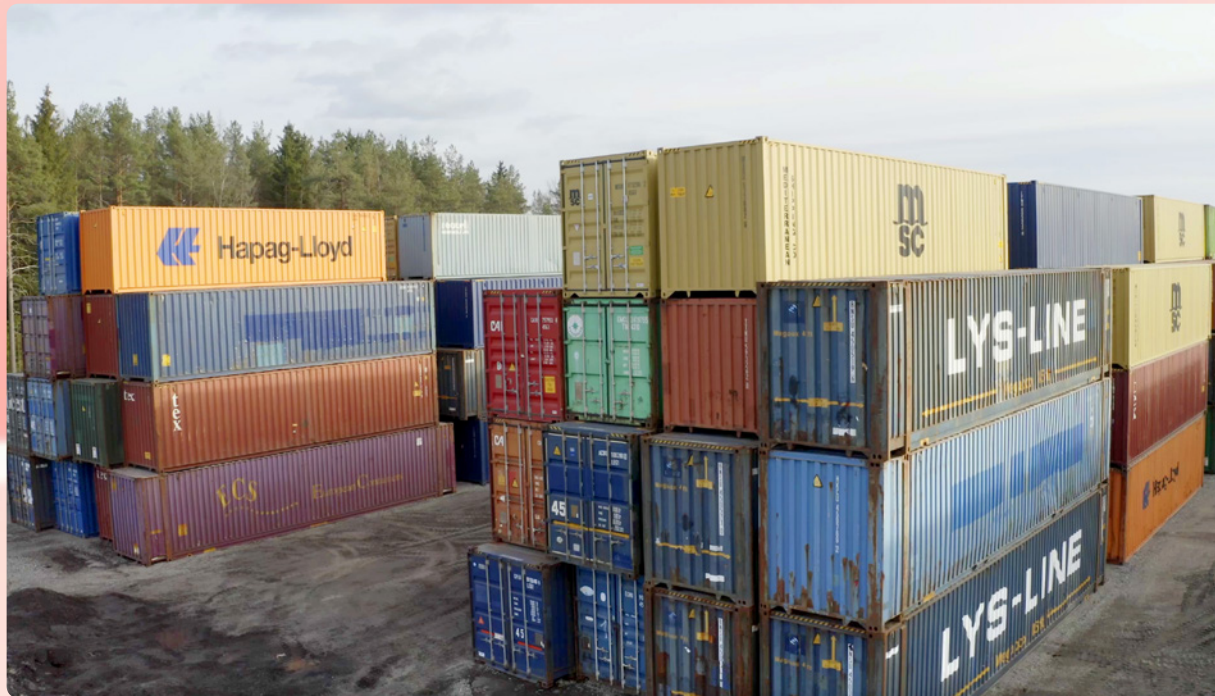
Three years from the onset of the pandemic, survey respondents anticipate the biggest material handling challenge in 2023 to be one they're very familiar with: continued disruptions and bottlenecks in the global supply chain. This obstacle was identified as a top challenge by 41% of respondents; the supply chain didn't magically return to normal once restrictions were lifted.

Rising eCommerce growth rates remain a struggle for retailers as well, with 40% indicating that this will be a concern in 2023. eCommerce's share of retail sales is expected to continue to

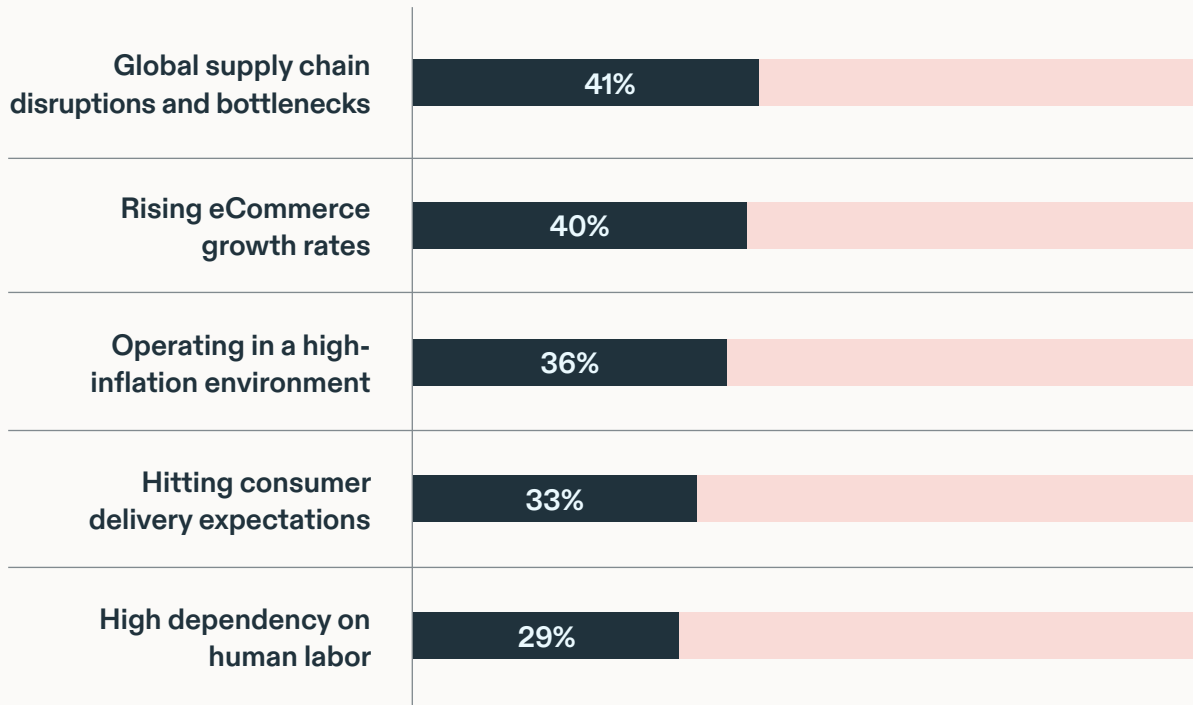
escalate, which means that the industry will need to keep pace with increasing demands. Survey respondents also continue to grapple with the challenges of high dependency on human labor to complete material handling and logistics work.

The challenge of operating in a high-inflation environment is new to the mix this year, but just as pressing. Raw material price increases, higher interest rates, and an overall increase in the price of goods and services indicate that inflation has been rising — and will remain elevated. More than one-third of respondents (36%) pinpoint inflation concerns as a top material handling and logistics challenge for 2023.

An additional key area of concern this year involves meeting consumer delivery expectations for hourly, same-day shipping, or next-day delivery.



Q: What are the biggest material handling challenges you predict the industry will face in 2023?*



*Respondents could select multiple choices



No doubt we're in for a tumultuous and chaotic year. Retailers are feeling the pressure increase as old challenges linger and new ones rear their ugly heads — but it's not all doom and gloom anymore. With the right automation strategy, delivering a cost-effective, great customer experience is completely within reach.

Peter Chen, CEO of Covariant

Automation investments optimize operations

Despite the challenges that they anticipate, industry executives also seem to be signaling the start of a new operating era: an opportunity for retailers to make their mark amid continuous waves of disruption and chaos. Instead of shying away from investments in the wake

of expected consumer-business slowdowns, they're positioning themselves to scoop up customers from weaker rivals when the time is right. They're also continuing to make investments that will optimize operations and revitalize the customer experience.

Q: Which of the following statements best describes your company's approach to material handling in 2023?

We view it as a way to create a strategic competitive advantage regardless of cost

51%



From ordering to fulfillment, being as innovative and efficient as possible will allow retailers to respond faster to evolving consumer demands while minimizing costs.

We view it as a strategic competitive advantage that must also be done in a capital-efficient way

31%



These companies will also view material handling as a strategic competitive advantage in 2023 but will make sure that changes and improvements are pursued in a cost-efficient way (as opposed to the executives who indicate that they're willing to spend in any way necessary).

We view it as a cost center

18%

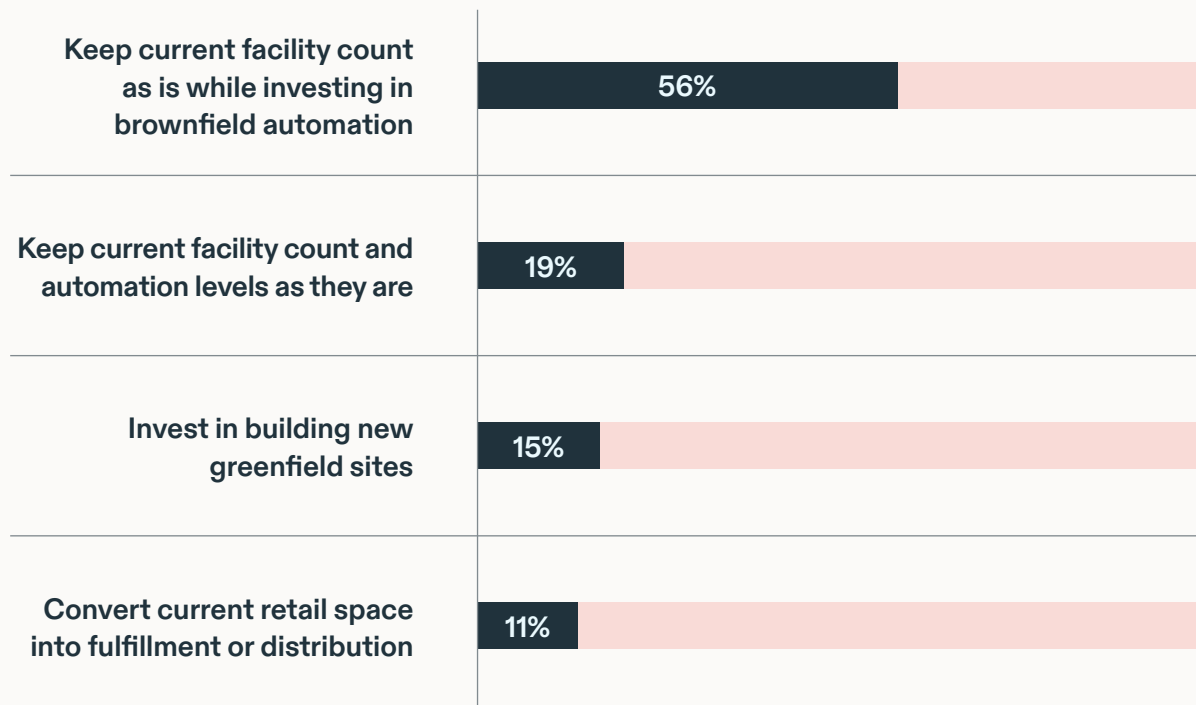


Investing heavily in brownfield

What automation investments look like differs drastically from previous years. Instead of focusing on building new greenfield sites, more than half of logistics executives plan to shift their 2023 fulfillment and distribution center investments toward automating their current facilities by bringing in automation that creates efficiency and upends heavily manual processes.



Q: How does your company plan to invest in fulfillment or distribution centers in 2023?



Percentages have been rounded to the nearest whole number.



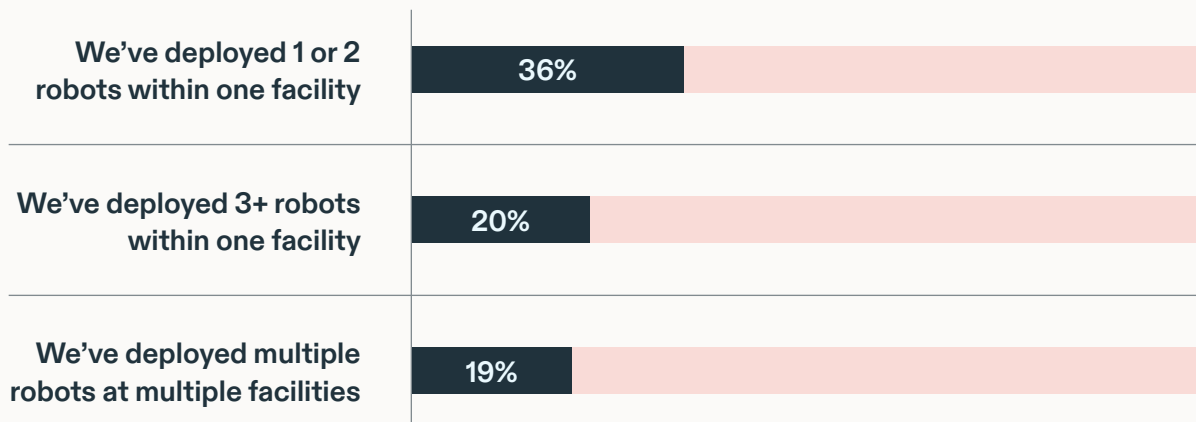
No longer a pilot: Scaling investment in AI Robotics

In previous years, companies report testing the waters of robotic picking automation with small deployments of one or two robots inside a single facility to minimize risk while leaving room for improvement, expansion, and further automation.

Despite recession fears, plans for automation technology will continue to grow. Retailers say that their investments in automation will continue to increase, even if the economy might be headed into a recession.

This is the year they start to shift from pilot automation projects to spending millions or more to deploy AI Robotics at scale — using multiple robots for multiple use cases across facilities.

Q: How much have you already invested in robotic picking automation?



Those positioned to succeed in 2023 are continuing to push for automation investments, even given an uncertain economic future. But, that investment today looks much different than it did in years past. Market leaders are looking for scaled robotic deployments within current facilities to generate more immediate ROI with reduced labor costs and improved throughput.

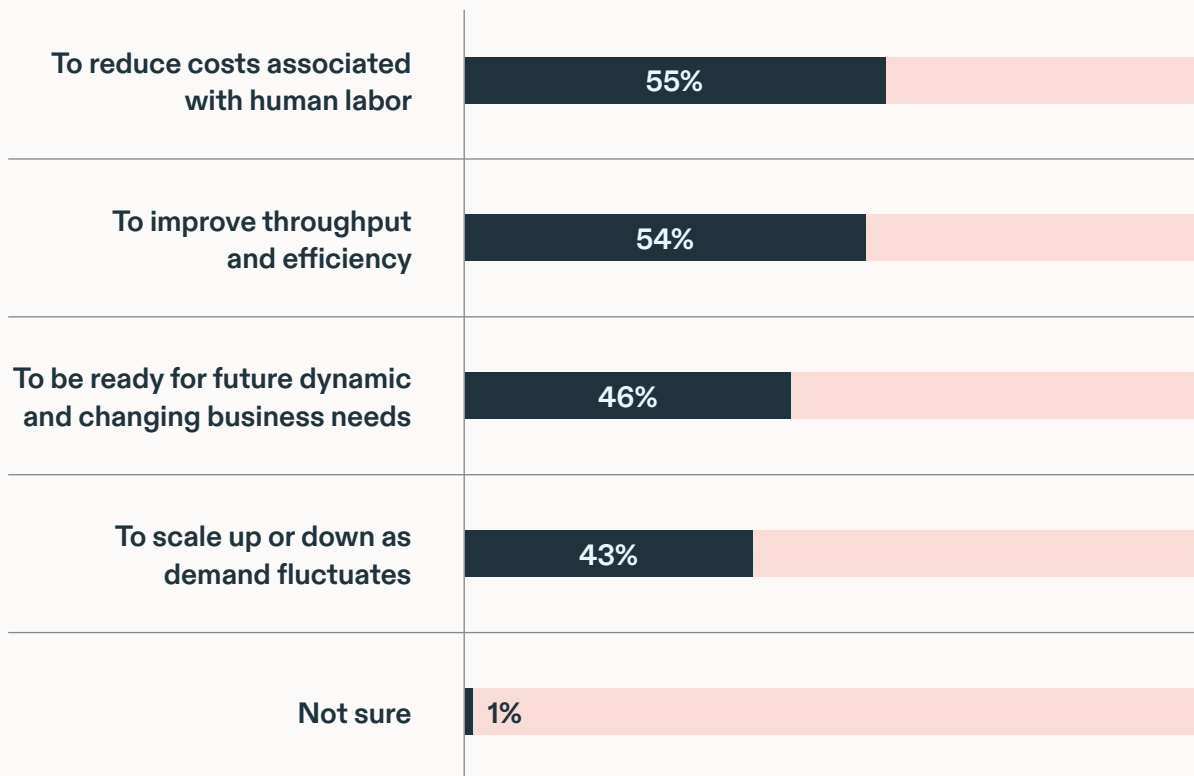
Peter Chen, CEO of Covariant

Automated picking creates a competitive advantage

The majority of logistics and retail executives clearly indicate their plans to prioritize material handling not only as a way to get customers what they need but also to gain an edge. So how will they establish material handling as a competitive advantage?

Most logistics and retail executives already recognize the importance of robotic picking automation and technology. They expect scaled deployment to provide benefits such as reduced labor costs, improved efficiency, and preparation for changing business needs.

Q: What do you perceive to be the business case for deployment of broadscale robotic picking automation?*



*Respondents could select multiple choices

Three core areas logistics and retail executives plan to automate this year

While no single use case for robotic picking automation reigns supreme when it comes to future investments, there are a few key use cases that rise to the top of the priority list.

More so, respondents indicate that automation is clearly the priority; only 2% say they do not plan to deploy any type of automation in 2023.

1 Order picking

Nearly half of executives (**43%**) plan to invest in robotic picking automation. Many have already made strides in this area, and they'll continue to expand on the investments they've started as they move from pilot projects to full-blown deployment.

Technology is advancing rapidly, including innovations in AI-powered robots that turn Goods-to-Person systems into autonomous Goods-to-Robot systems by acting as preppers and packers. This increases efficiency, closes labor gaps, and makes scale of deployment possible. Retailers looking to leverage automated order picking and material handling generally as a competitive advantage are already well on the move as they turn their attention to upgrading their existing facilities in 2023.

To make these crucial investments, executives are relying on a few different purchase options. Almost half (46%) are using a hybrid of capital expenditures and Robot-as-a-Service (RaaS) models. Another 35% plan to use RaaS or Opex models exclusively, while 33% will use capital dollars.

2 Packing

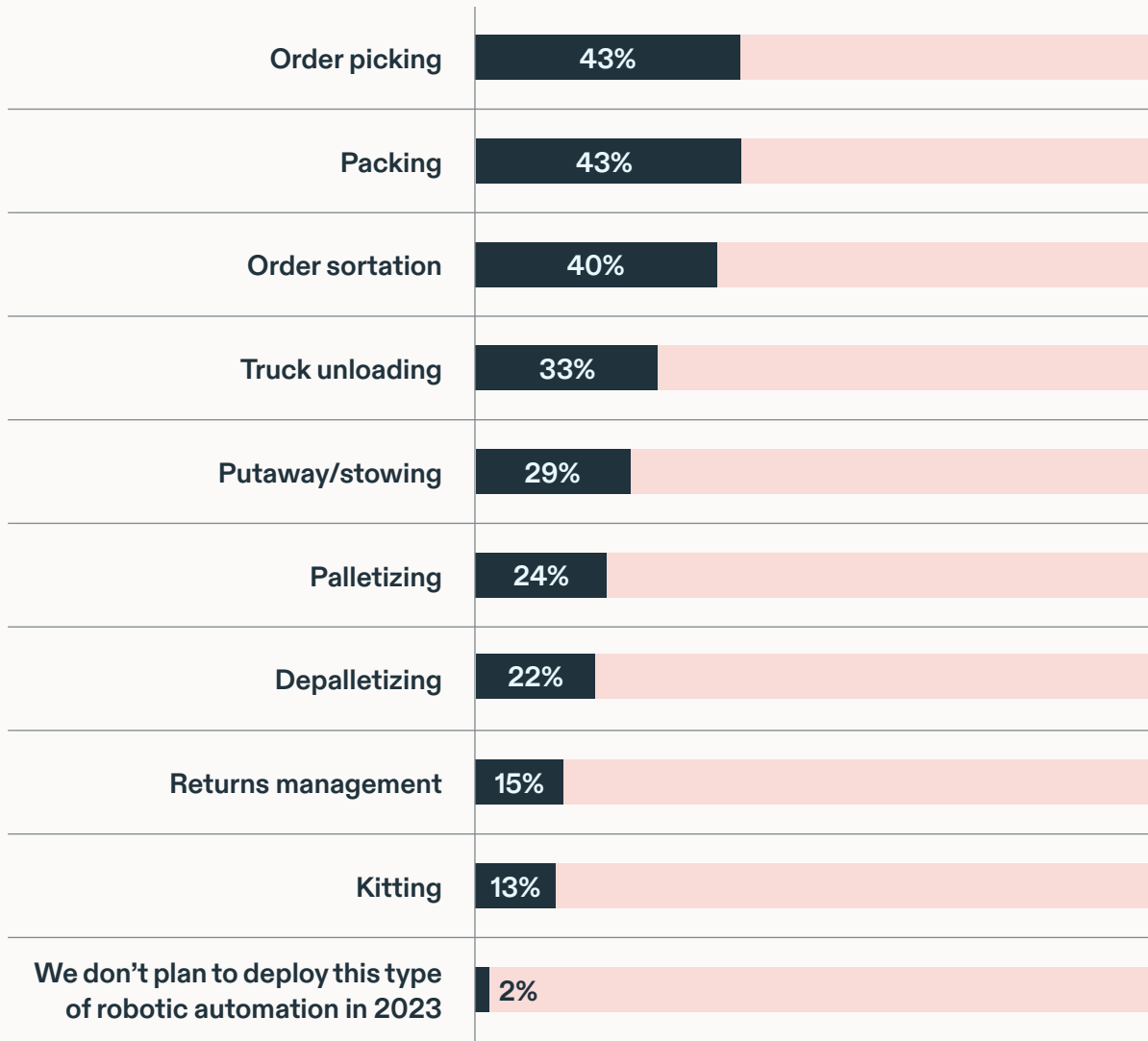
Automated packing, whether of poly bags, boxes, or other packing material, maximizes efficiencies and keeps costs low by taking over repetitive manual processes to reduce dependency on manual labor and complete tasks faster.

Nearly half of logistics and retail executives (**43%**) plan to invest in automated packing in 2023 to make improvements to order prep.

3 Order sortation

While manual sortation relies on workers to identify and divert items, automated order sortation accomplishes this work without human intervention. Two in five executives (**40%**) plan to invest in automated order sortation this year. This can improve many areas of material handling and logistics, including receiving, picking, packing, and shipping.

Q: For picking, where do you intend to invest in robotic automation in 2023?*



*Respondents could select multiple choices

Looking ahead, top priorities remain the same for 2025

Over the next few years, executives plan to remain focused on these areas in their facilities. When asked about the robotic automation investments they plan to achieve by 2025, the same three categories — order picking, packing, and sortation — are predicted to still be top priorities in 2025.

Summary

Despite the economic uncertainty ahead, executives in the retail sector are veering from their usual path of predictability when it comes to material handling and logistics.

Instead of shying away from spending in a chaotic environment, retailers are forging ahead with a new approach: prioritizing material handling and logistics as a competitive advantage and investing in automation to squeeze every possible ounce of efficiency and cost savings out of the process — all while working to exceed evolving customer demands.

If you haven't started to make these investments yet, there's still time to catch up. While most retailers intend to scale investment quickly, many are just beginning their journey toward AI-powered robotic automation. You're not behind yet ... but waiting much longer to start may leave you trailing the pack instead of leading it.

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Covariant continues to set a new standard for what's possible in AI and the industries that use it, including retail and the supply chain. Its mission is to build robots that have the ability to see, think, and act — improving how the world works every day.

Founded in 2017 by the world's top AI researchers and roboticists, Covariant is bringing the latest artificial intelligence research breakthroughs to the biggest industry opportunities. With offices in North America and Europe, Covariant offers the broadest portfolio of AI-powered robotic picking applications including order sortation, item induction, goods-to-person order picking, kitting, and depalletization.

[Learn more at covariant.ai](https://covariant.ai)

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