ZEBRA | OXFORD ECONOMICS

Elevating retail value:
The impact of Intelligent Operations

Introduction

Retailers, from mass merchants to e-commerce platforms, are investing heavily in workflow optimization and are reporting higher revenues, profits, and customer satisfaction as a result. For these established organizations, intelligent operations are foundational: targeted investments in key technologies—from mobile computers to artificial intelligence (AI) and machine learning—help them achieve real-time visibility into their workflows, generate actionable insights from robust data management processes, and cut inefficiencies and errors at scale.

To understand how workflow improvements translate to financial benefits, Oxford Economics and Zebra Technologies surveyed 400 retail decision-makers from around the world, then applied econometric analysis to their responses to measure business performance. Our research focused on several key workflows—including inventory management, checkout operations, task management, order fulfillment, and loss prevention—and found significant levels of progress and payoff.

Intelligent operations integrate advanced technologies like AI, automation, and data with human expertise to optimize business processes.

Retailers that focused on improving inventory management, for example—an area of particular concern for the industry—reported, on average, higher top- and bottom-line impacts over the last year compared to those that did not, including 1.8-percentage-point higher revenue growth and 1.5-percentage-point higher profitability.[1]

Our report takes a deep dive into two workflows in need of improvement: inventory management and loss prevention. In-depth interviews with leaders from the industry make clear that the benefits of intelligent operations are not limited to a single workflow or even a single organization—these benefits generate significant value for the entire retail supply chain, a complex, interdependent system spanning manufacturing, transportation and logistics, and retail organizations all working together to meet customer demands for high-quality products and timely services.

In fact, organizations across the retail supply chain that reported meaningful workflow improvements saw, on average, 2-percentage-point higher revenue growth and 1.7-percentage-point higher profitability than peers over the last year.

1. The percentage-point differences show the average gap in revenue growth and profitability between organizations that made meaningful improvements to inventory management and those that did not, based on our analysis of the survey data.

Retailers are looking for ways to optimize workflows

Customer experience is the organizing principle around which retailers focus other business goals and operational decisions, including investments in automation technologies. "Automation is not the end goal—it's a means to an end," says one strategy and operations director at a grocery and e-commerce platform based in India. "We deploy it thoughtfully to enhance our core mission: delivering the right products to the customer swiftly and reliably, thereby elevating overall customer satisfaction."

Using technology is a clear priority for retailers in our survey. They report allocating, on average, 69% of their IT budgets to devices, software, and other technologies used to automate workflows. Still, workflow automation takes on different meanings for different organizations. Nearly half define it as the use of digital technologies to streamline workflows and eliminate manual tasks, while 41% emphasize the use of both devices and software to improve productivity and efficiency. Just 5% primarily see automation as the use of advanced analytics and AI/ML to optimize decision-making and operational performance.

This range of definitions might be explained by the industry's underdeveloped data management systems: nearly two-thirds say data analysis is performed only in select areas or remains limited and siloed. Roughly one-third report more advanced capabilities like automated process for data management across multiple business functions or the use of AI for organization-wide insights.

Improving data management processes is a crucial step toward optimizing workflows and meeting business goals for the next three years. In addition to improving customer experience and satisfaction, cited by roughly half as a top business priority, retailers are focusing on inventory accuracy and management, product and service quality, and operational efficiency and productivity.

Employee resistance to new ways of working, skills shortages, and high training costs are among the industry's largest barriers to improving workflows, but investing in tools to make operations more intelligent can help ease some of these workforce challenges. "Employees are increasingly recognizing how automation tools help them work smarter, boost productivity, and tap into new dimensions of their potential," says the strategy and operations director at the grocery and e-commerce platform.

Fig. 1: Retailers are prioritizing customer service and inventory accuracy over the next three years

Q. Which three of the following business goals are your top priorities for the next three years? Top five responses shown.

Intelligent operations elevate business outcomes

A majority of retailers say they have made meaningful improvements to their inventory management and point of sale and checkout operations over the last two years, citing a range of benefits from increased speed to reduced errors. But certain workflows, such as loss prevention, associate task management, order fulfillment and omnichannel integration, remain troublesome for more than half of retailers.

Retail organizations that have yet to make meaningful improvements to their workflows have big opportunities ahead of them. Investing in key technologies, from RFID readers and mobile computers to forecasting software and smart sensors, can elevate operational efficiency, improve customer experience, and increase revenue growth and profitability. Surveyed retailers that have meaningfully optimized their workflows over the past two years noted, on average, a 21% improvement in customer satisfaction during that time.

+21%

Average increase in customer satisfaction for retailers implementing workflow improvements

Workflow gains at scale—what they could mean for the top 20 retailers

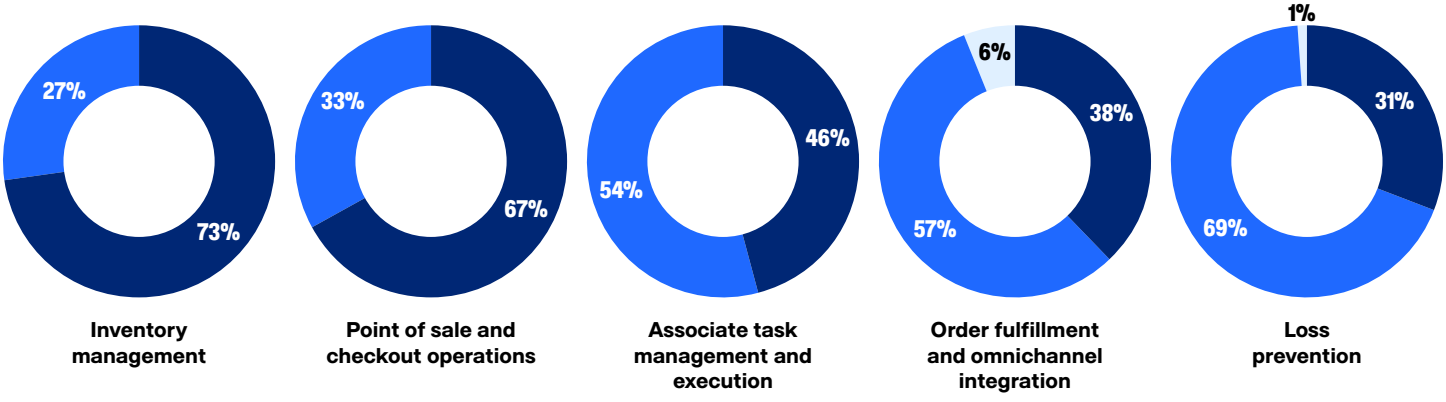
If the top 20 retailers in the Forbes Global 2000 list—who collectively generated $3.6 trillion in revenue in 2024—were to achieve meaningful improvements in their workflows, they could potentially see an aggregate increase of $65.9 billion in revenue and $2.3 billion in profits.[2]

That translates to an average of $3.0 billion in higher revenue (a 1.8% uplift) and $110 million in added profit per retailer.

These estimates are based on patterns observed in our survey, which included retailers of all sizes. The findings are applied to the top 20 retailers in the Forbes Global 2000 retailers list and assume similar relationships hold. While these figures are not predictive or causal, they provide a useful indication of the potential scale of benefits for major retailers.

Fig. 2: Inventory management is improving, while loss prevention remains a pain point

Q. For each workflow that applies to your organization, select if its improvement is necessary or if it has already seen meaningful improvement over the last two years.



Note: Percentages may not sum to 100% due to rounding

2. We considered the top 20 companies from the following industries listed in the Forbes Global 2000: Retail and Wholesale, Retailing, Food Markets, and Hotels, Restaurants & Leisure. This selection was based on the 2025 rankings. Forbes. "Global 2000: The World's Largest Public Companies." Forbes, July 10, 2025. https://www.forbes.com/lists/global2000/.

Deep dive: Optimizing inventory management improves accuracy and efficiency

Inventory management is a leading business priority for 39% of retailers, although retailers overall continue to see improvements in this area. Organizations that have achieved meaningful changes over the last two years are most likely to note increased inventory accuracy (68%), reduced time spent on inventory management (47%), and improved forecast accuracy (44%)—benefits that ultimately serve their commitment to excellence in customer service.

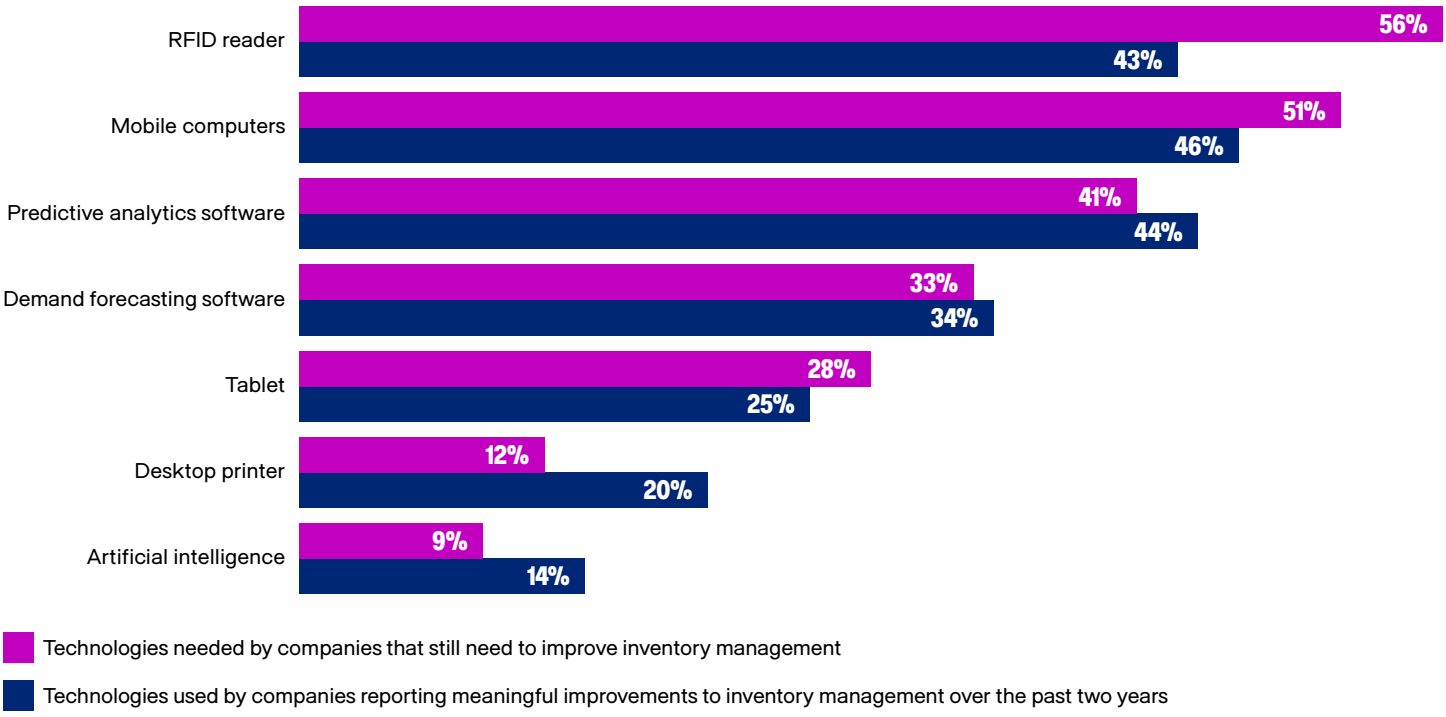
Retailers relied on a range of technologies to optimize inventory management, but mobile computers, predictive analytics software, and RFID readers stood out as the most important. Those still looking to improve inventory management are also betting on mobile devices—especially RFID readers—and predictive analytics. Beyond increasing accuracy and improving the customer experience, these technologies support stronger internal collaboration by enabling real-time data sharing and decision-making. These tools are what differentiate leading retailers from the rest.

One director of supply chain sourcing and procurement at a major US retailer says his organization made a significant push to upgrade its inventory software management systems and get devices in the hands of workers across its distribution centers. "I don't know of any facility that doesn't have workers with a tablet or some device they're using to check inventory levels and watch process flow," he says. "The best thing that happened for us, along with updating the software systems, is that we upgraded the technology and put it in the hands of actual associates and employees in the facilities." This step toward intelligent operations has helped the retailer maintain healthy inventory levels.

Retailers that improved inventory management reported, on average, 1.8-percentage-point higher revenue growth and 1.5-percentage-point higher profitability over the last year compared to those that did not make meaningful improvements in this area. For the typical retail organization represented in our survey (see methodology and demographics on page 10), this translates to a potential $53.8 million uplift in revenue and $3.5 million in higher profits.

Fig. 3: Mobile computers and predictive software are crucial for inventory management

*Q. Which of the following technologies are or were most important to achieving improvements for your **inventory management** workflow? Select two or more.*



Deep dive: Optimizing loss prevention is key for reducing shrink, minimizing fraud, and improving the associate experience

Loss prevention is identified as a major concern for about two-thirds of retailers, most of whom are looking for ways to reduce shrink, waste, and loss (64%), minimize fraud (50%), improve customer experience (40%), and expand their view of product loss (37%). Both directors we interviewed from the retail sector are looking for ways to optimize shrink reduction at their organizations.

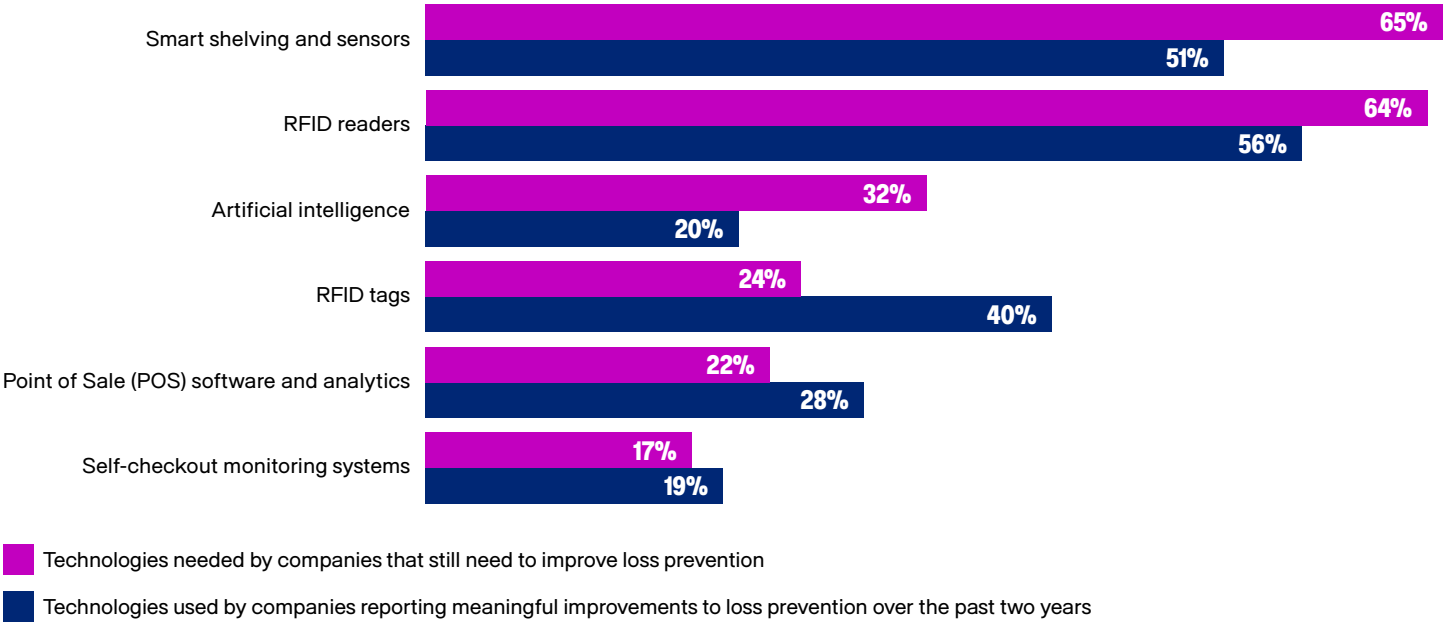
To improve loss prevention, retailers say they would benefit most from integrating technologies like smart shelving and sensors, RFID readers, and even AI—a far more popular option for retailers making these improvements today compared to two years ago.

Retailers that improved loss prevention reported, on average, 1.2-percentage-point higher revenue growth over the last year compared to those that did not make meaningful improvements in this area. For the typical retail organization represented in our survey (see methodology and demographics on page 10), this translates to a potential $35.1 million uplift in revenue.

These retailers invested in technologies such as smart shelving and sensors, RFID sensors and tags, and point of sale software and analytics, achieving outcomes their counterparts are still struggling to attain. For instance, 57% of retailers that improved their loss prevention workflows say they reduced shrink, waste, and loss; 43% minimized fraud; 33% improved the associate experience; and 24% expanded their view of product loss.

Fig. 4: Sensors and RFID technologies are key for loss prevention, but AI is gaining traction

*Q. Which of the following technologies are or were most important to achieving improvements for your **loss prevention** workflow? Select two or more.*



Large retailers are leveraging their size

An organization's approach to improving workflows is closely tied to the resources available to it. In our survey, very large retailers were more likely to say they improved areas such as inventory management and point of sale and checkout operations when compared to their large and mid-sized counterparts. Yet they still grapple with issues in other workflows, such as associate task management and loss prevention.

We defined the categories as:

- **Very large retailers:** $10 billion or more in revenue
- **Large retailers:** $1 billion to $9.9 billion in revenue
- **Mid-sized retailers:** $100 million to $999.9 million in revenue

Retailers of all sizes say they struggle to upgrade or integrate with legacy technologies, but this issue may be more pronounced for established organizations. "Our downfall is we have a lot of legacy systems," says the supply chain director at the major US retailer. "Some of those we had to change to make work and some of them we had to bandage together." A little more than a quarter of large and very large retailers say legacy systems are a top-three barrier to improving workflows, compared to about a fifth of mid-sized retailers.

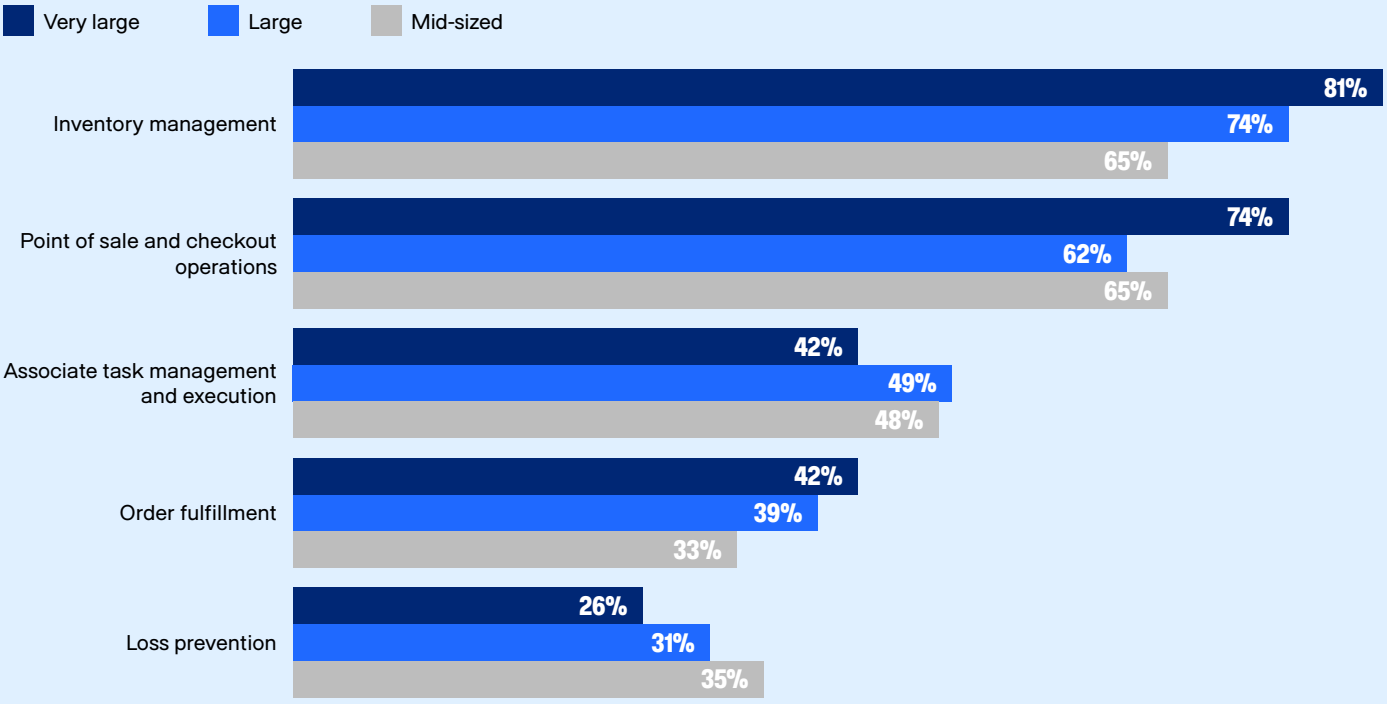
Larger retailers may have the resources required to make significant technology investments and upgrades, but uncertainties surrounding return on investment (ROI) can stall progress. According to one director of operations at a global logistics firm: "Everyone wants to talk about it, but when it comes to putting your neck on the line or your political capital within the organization behind a multimillion-dollar purchase, and there's a worry it might not work out or it might be rocky, that's when the wheels usually come off."

Regardless of their size, retailers will need to demonstrate a clear path to financial returns for any technology investment. "If you can't map that out, you're probably not going to get funding for it," says the operations director at the logistics firm.

These investments can be the difference between operations that are intelligent and elevate business outcomes, and those that fall short. For instance, compared to mid-sized retailers, large and very large retailers that improved inventory management were more likely to say they invested in demand forecasting software, predictive analytics software, and mobile computers. The payoff is clear: they were more likely to say they increased inventory and forecasting accuracy and reduced time spent on inventory management. Large and very large retailers also are piloting and using AI for inventory optimization and demand forecasting at higher rates than mid-sized retailers.

Fig. 5: Very large retailers are ahead of others in improving their inventory management and point of sale operations

Q. For each workflow that applies to your organization, select if its improvement is necessary or if it has already seen meaningful improvement over the last two years. "Meaningful improvements have been achieved over the last two years" responses shown by organization size.



Progress implementing AI

The rapid advancement of AI should support organizations just beginning to improve key workflows, especially as these tools and technologies become more widely accessible.

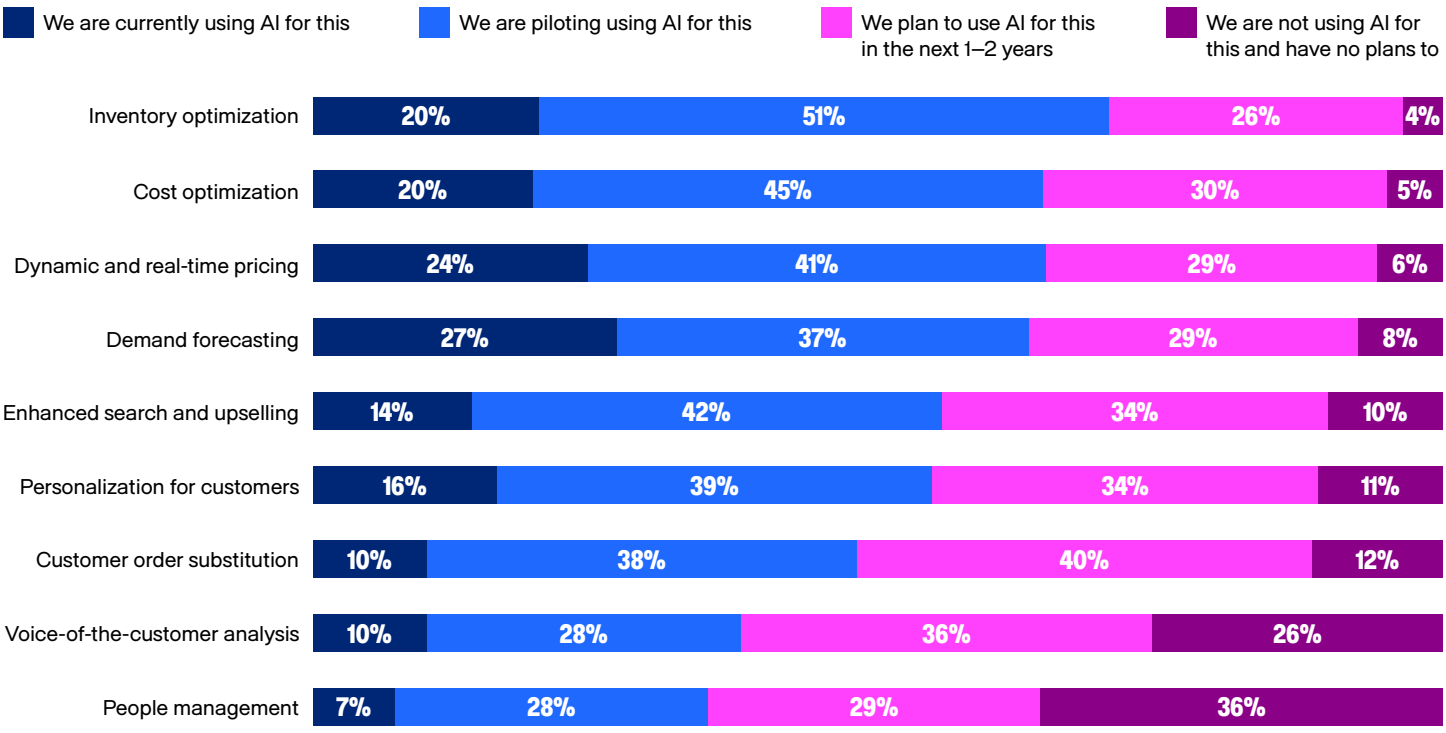
When the major US retailer we interviewed upgraded its inventory management software and technology—an improvement that helped the firm manage inventory levels mid-pandemic—AI was not as prevalent as it is today. "We had to figure out how to increase accuracy and improve our demand and inventory quantities," says the supply chain director at the retailer. "Now, we're testing AI automation and prototyping it in certain facilities to see if it can help us, and our engineers are working on that to see if it leads to more improvement than we currently have."

In fact, most retail organizations say they are either using or piloting AI across a range of workflows, from cost optimization to demand forecasting. Roughly half say AI pilots are underway for inventory optimization—a key investment for addressing loss prevention and risk detection.

For retailers to make the most of their AI implementations, they will need to invest in their data access, management, and analysis processes—a crucial step toward intelligent operations. The retail supply chain director sometimes struggles to access data he needs to run operations more efficiently. But breaking down data siloes is not enough—the data should be up to date as well. He notes that organizations across the supply chain need to be smarter about their data-sharing and management processes in order to benefit from AI-driven analytics across their networks. "I can be a lot smarter in my role if I can just look something up instead of trying to get a report from a merchandise buyer or developer," he says. "It's a lot of phone calls."

Fig. 6: Retailers are leveraging AI to optimize a range of workflows

Q. To what extent is your organization using AI for the following workflows?



Note: Percentages may not sum to 100% due to rounding

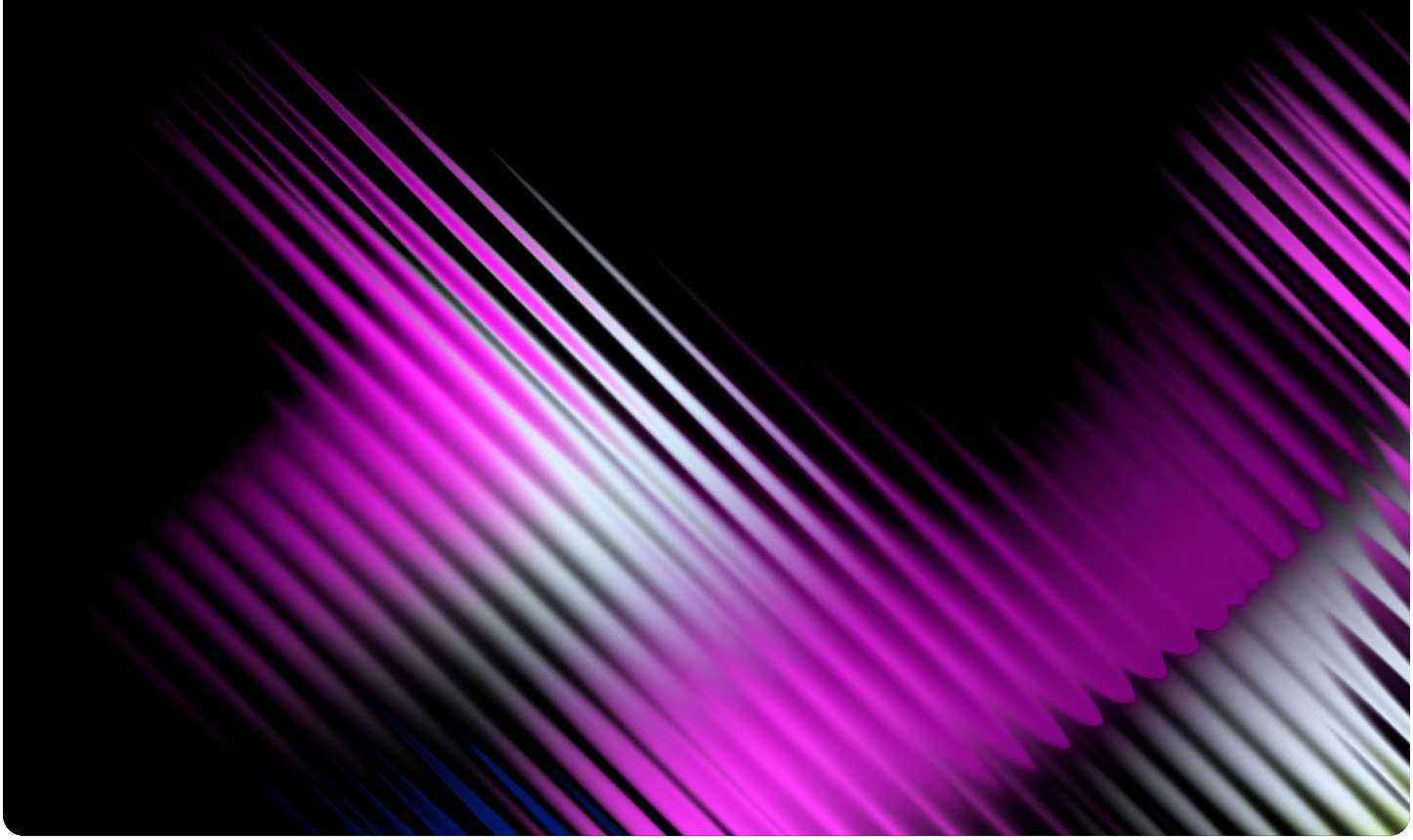
Conclusion

Retailers that adopt intelligent operations should enhance their customer experience, streamline workflow efficiency, and boost employee satisfaction, ultimately driving substantial improvements in both revenue growth and profitability.

Every retailer has the opportunity to revamp outdated and inefficient workflows while continuing to enhance the efficiencies of already improved operations. Retailers in our survey have made meaningful progress optimizing key workflows over the last two years, especially in inventory management, but they understand that this work is ongoing; inventory accuracy and management, for instance, remains a top business priority. Meanwhile, some areas of the business, like loss prevention, pose ongoing challenges for most retailers.

Key takeaways from our impact analysis and in-depth interviews include the following:

- **Robust data systems are foundational for successful technology investments.** Retailers looking to upgrade their legacy systems or invest in advanced technologies like AI will need to make sure their data management processes are well defined and integrated across their business. This is key to enabling real-time, connected insights and enhancing data-driven decision-making.
- **Intelligent operations are powered by a combination of devices and software solutions.** Retailers that leverage a range of tools such as RFID readers and tags, mobile computers and tablets, AI, and analytics and forecasting software are better positioned to minimize errors, gain visibility into their workflows, and make better business decisions.
- **Retailers beginning their workflow optimization journeys today are set to benefit from efficiencies driven by AI.** Most retailers are already piloting or using AI to enhance key tasks and workflows. As the technology continues to mature, retailers can leverage it for advanced analytics and more streamlined operations.



Methodology and demographics: Reaching retail firms

In partnership with Zebra Technologies, Oxford Economics surveyed 1,000 senior leaders from the manufacturing, retail, and transportation and logistics sectors to understand how organizations are using hardware and software technologies to improve workflows.

This sample features **400** respondents from the retail sector, including mass merchants, department and specialty stores, supermarkets, and e-commerce stores. Organization sizes vary: 30% of retailers surveyed report annual revenues of $100 million to $499.9 million in their most recent fiscal year, while 70% report $500 million or more.

The survey was fielded from April to May of 2025, targeting retailers from the US, Mexico, UK, Germany, India, Japan, and Australia and New Zealand—all of whom are responsible for or involved in decisions around improving operational tasks and workflows. Respondents hold positions at the managerial level or higher in either IT or line of business roles.

To contextualize our survey findings, we conducted in-depth interviews with retail executives who shared their experiences optimizing workflows at their organizations.

Oxford Economics then analyzed how reported improvements in business outcomes—such as revenue growth and profitability—correlate with advancements in workflow processes. Using regression analysis, we identified the extent to which specific types of workflow improvements are associated with better business performance, while controlling for factors such as organization size, industry sector, and country of operation.

Dollar values are estimates based on the "typical" organization in our sample—that is, one whose size and performance are close to the middle of the range reported by respondents (i.e., the median). The average percentage-point differences identified in our analysis are applied to this typical organization to estimate the potential indicative revenue and profitability benefits associated with workflow improvements.

While regression techniques help isolate these associations, the findings should not be interpreted as evidence of causation. Rather, they illustrate potential benefits based on patterns in the data. Additionally, the results reflect reported responses from the survey and should not be generalized beyond organizations similar to the typical respondent in our sample.

The figures in the sidebar titled "Workflow gains at scale—what they could mean for the top 20 retailers" are illustrative estimates based on our survey findings. We applied the average percentage point improvements in revenue and profits—reported by organizations that experienced meaningful workflow gains—to the most recent revenue and profit data for the top 20 retailers in the relevant Forbes Global 2000 industry categories.[3] This approach provides a simplified estimate of the potential financial uplift these leading retailers might see if they achieved gains comparable to those observed in our survey. These figures are not predictive and should not be interpreted as evidence of causality.

3. We considered the top 20 companies from the following industries listed in the Forbes Global 2000: Retail and Wholesale, Retailing, Food Markets, and Hotels, Restaurants & Leisure. This selection was based on the 2025 rankings. Forbes. "Global 2000: The World's Largest Public Companies." Forbes, July 10, 2025. https://www.forbes.com/lists/global2000/.

About Oxford Economics

Oxford Economics specializes in evidence-based thought leadership, forecasting, and economic impact analysis. Our economists use sophisticated analytical models and have access to a rich database of figures, forecasts, and analysis on 200 countries, 100 industrial sectors, and 8,000 cities and regions. Headquartered in Oxford, with offices around the world, we employ more than 600 people, including over 400 economists, industry experts, and business editors. The rigor of our analysis, caliber of staff, and best-of-class global economic models and analytical tools make us a trusted resource for over 2,500 corporations, financial institutions, government organizations, professional service firms, and universities. For more information, visit www.oxfordeconomics.com.

OXFORD ECONOMICS

About Zebra Technologies

At Zebra, we provide the foundation for intelligent operations with an award-winning portfolio comprised of automation, asset visibility, and connected frontline solutions. With operations in +100 countries, we help organizations—including +80% of the Fortune 500—respond faster to change, improve productivity, and empower teams with real-time insights. Together with our partners, we create new ways of working that make everyday life better. Learn more at zebra.com.

ZEBRA

> “Retail is being redefined at the workflow level—where speed, visibility, and precision quietly shape the brands that lead. These behind-the-scenes moments drive growth, fuel profitability, and define the shopper experience. Intelligent operations bring it all together—simplifying complexity and elevating performance at every touchpoint.”
>
> *—Joe White, Chief Product & Solutions Officer, Zebra Technologies*

ZEBRA