

TURING

E-BOOK

AI in Retail and CPG: How Leading Players Are Addressing Industry Challenges and Driving Success



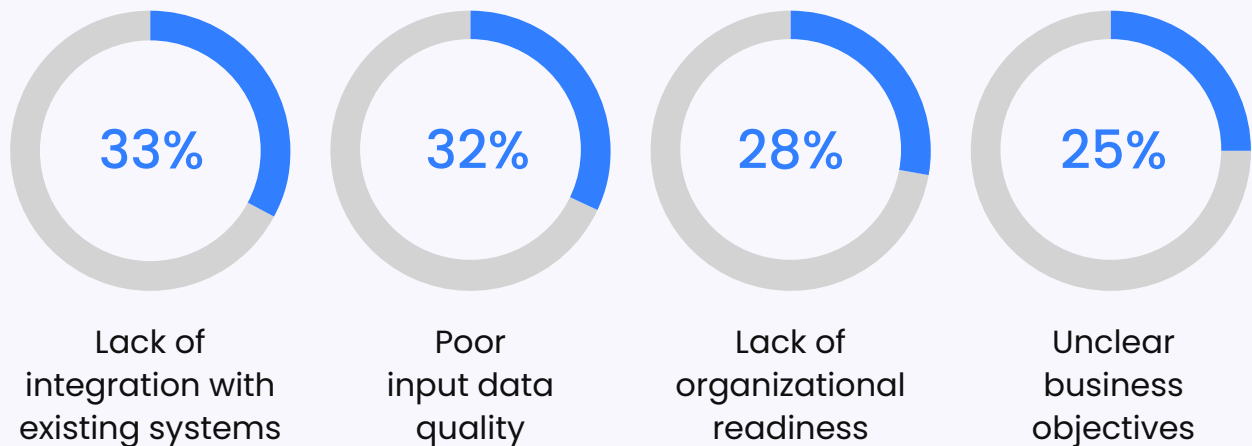
Table of Contents

Introduction	3
Section 1: Trends in Today's Retail Market	5
Section 2: How AI Addresses Core Retail/CPG Challenges	8
Section 3: Revolutionizing Day-to-Day Retail Operations	11
Section 4: Transforming Retail Knowledge Management and Data Infrastructure with AI	13
Section 5: Designing the Right AI Team and Implementation Roadmap	15
Section 6: Overcoming the Challenges of AI Adoption	16
Section 7: Measuring Success Metrics That Matter	18
How to Adopt AI for Your Retail Goals	20

Introduction

Retail and Consumer Packaged Goods (CPG) companies operate in a volatile, complex market. Facing inflationary pressures, shifting consumer behaviors, rising shrinkage, and intense competition, retail leaders are racing to transform their operations and drive profitability. A recent Turing survey, "Insights from Industry Leaders: A View from the Edge of Applied AI," found retail executives' priorities include operational efficiency, customer experience, growth, and innovation. But their top concern? For 82%, it is identifying and implementing AI solutions. Despite significant efforts, however, many retailers struggle with fragmented data, limitations of legacy systems, and company-level resistance to change.

Retail leaders' top pain points as they navigate AI:



Source: QA5: Of the challenges you rated, which three had the greatest impact on your company's AI initiatives?
Response options with <15% are not displayed: poor user adoption, lack of sponsorship from leadership, ethical/biased concerns, model degradation, application wasn't user-friendly, tension with the centralized team. Base: Total (N=236)

Retailers seeking a sustainable competitive advantage view AI as a new avenue for growth, stability and solving entrenched industry challenges. AI-driven insights power smarter, faster decisions, such as improving operational efficiency, optimizing inventory, enhancing personalization, and driving profitability. Retailers that effectively implement AI are capturing measurable gains in sales, margin, and customer loyalty. Leadership teams are actively investing in AI to drive long-term value.

Turing's original research survey features insights from nearly 250 C-suite and senior executives, the majority from Fortune 500 companies.¹ According to the survey, 76% of retail companies currently invest in AI, and 94% of executives expect AI investments to increase over the next three years. However, success with AI-focused projects isn't guaranteed. Challenges such as poor data quality, lack of system integration, organizational unreadiness, and unclear business objectives can derail AI initiatives before they deliver value to retailers.

Nearly half of retail leaders (47%) feel "defeated" by their past AI efforts. The good news? Retailers who engage external experts and partners to provide technical expertise and AI advisory services report significantly higher success rates. Companies that frequently engage outside resources have a 32% success rate, compared to just 21% among those that don't.



Let's explore how retail and CPG companies can use AI strategically to solve their most pressing challenges and why smart partnerships are often the key to AI-driven success.

¹ In the "Insights from Industry Leaders: A View from the Edge of Applied AI," survey, 246 senior executives were interviewed. 196 of those individuals work at Fortune 500 firms, representing 79.67%.

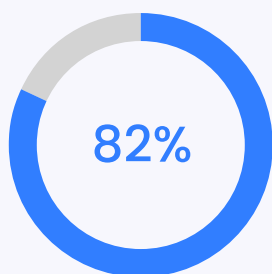
Section 1:

Trends in Today's Retail Market

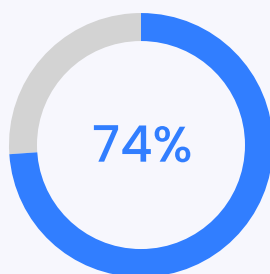
Navigating volatility, operational disruption, and evolving customer expectations with strategic action.

The retail and CPG industry is under immense pressure. Leaders are navigating complex operational, customer, and technological challenges that require new solutions. For many, the path forward is paved with AI tools and intelligence. The Turing survey found that for 82% of retail leaders, implementing AI based solutions is a top business priority.

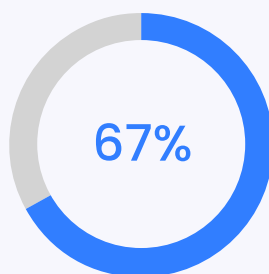
Retail leaders' top business priorities:



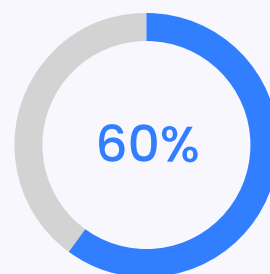
Identify and implement AI solutions



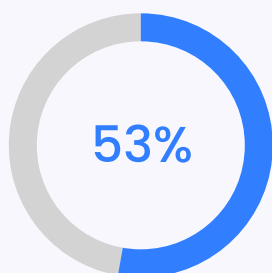
Digital transformation



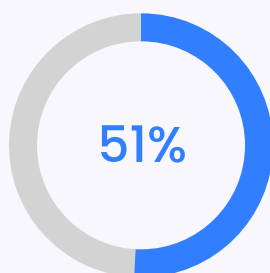
Efficiency



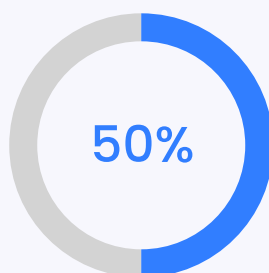
Customer experience



Growth and expansion



Cybersecurity



Innovation and R&D

QA1: Thinking about your company and your role in the business, what are the areas that are most on your mind for 2025-2026? Base: Banking/Financial/Insurance (N=81), Retail/Consumer Goods (N=72), Technology (N=97)



Retailers are contending with these pressing challenges:

Inventory management is inefficient

Despite sophisticated systems, stockouts and overstocks continue to plague the industry. The [National Retail Federation](#) reported that stockouts cost retailers up to \$1 trillion in sales annually. Without the right tools to forecast demand and automate ordering, retailers often rely on data from previous years rather than real-time, AI-powered insights.

Retailers struggle to secure customer loyalty

High customer churn rates and fierce competition for retail loyalty strain marketing budgets and profitability. AI-powered personalization efforts are getting underway; [Bain and Company](#) reported a 10-25% increase in returns on AI-personalized retail ad campaigns. However, without robust data foundations, brands can fail to realize this potential.

Fragmented data hinders customer relationships

Sixty percent of retail leaders consider customer experience and engagement a top strategic focus. At the same time, Turing found that 32% of surveyed retailers report poor data quality as a barrier to implementing AI projects that improve customer experience. These issues undermine AI initiatives before they start or scale.

Few organizations are ready for AI

While executives are excited about the potential of AI, 28% cite a lack of organizational readiness as another roadblock. Internal resistance to adopting new technologies can create tensions, as customer expectations for convenience and personalization rise.

Talent retention is an ongoing challenge

Hiring and retaining qualified talent remains a constant challenge for retailers. According to [TotalRetail](#), industry employee turnover, especially among frontline staff, can exceed 60%. Improving hiring, targeting training, and developing scheduling solutions are critical.

The retail industry is optimistic about AI's potential to help transform deeply entrenched challenges. While nearly half of retail leaders feel "defeated" by previous AI initiatives, 96% remain positive and excited about AI's future impact. The right AI solutions can address core challenges head-on, but success requires a clear roadmap and the right expertise to guide the journey.

Shoplifting is on the rise

One of the most pressing issues retailers face is an alarming rise in shoplifting and shrinkage, often related to self-checkout systems. The [Council on Criminal Justice](#) found shoplifting was up 14% in 2024, compared to the previous year. Retailers lose billions of dollars annually to theft, errors, and process vulnerabilities, and these losses erode already tight margins and profitability.

Section 2:

How AI Addresses Core Retail Challenges

Transforming shrinkage, churn, and inefficiencies into growth opportunities through targeted AI solutions.

Retail leaders increasingly recognize that AI can offer targeted solutions to operational and customer experience challenges. The numbers tell an important story: 76% of retail leaders surveyed by Turing are actively investing in AI, and 94% expect their investments to grow. Here's how AI is helping retailers solve core retail challenges:

From inefficient inventory management -> to reduced out-of-stocks

Efficient inventory management is a critical determinant of retail profitability. AI-powered tools can help predict demand, automate reordering when popular stock runs low, and even identify items that should be marked down or promoted to prevent overstocking. Turing worked with a global company to use AI to prevent stockouts and overproduction. To develop an effective forecasting model, the team collected and rigorously cleaned historical sales data and analyzed product-specific sales, promotions and pricing. They used the enhanced data to find and deploy the most accurate model to forecast future product demand and guide supply chain decisions.

By implementing agentic systems, retailers can transition from reactive to proactive inventory management—minimizing human error, accelerating response times, and significantly reducing stockouts. For example, agents can autonomously place or recommend orders based on real-time demand signals, lead times, and supplier performance. This reduces human delays in the procurement process, helping prevent stockouts. Turing has been helping a number of clients build AI agents to automate decision making and reduce operational inefficiencies.

From customer churn -> to personalized shopping experiences

With more retail options online and in-person, customer loyalty is essential, yet fragile. AI-driven personalization tools are yielding significant results for retailers.

Personalization can be used in marketing and communications, as well as during online and in-store interactions. Turing helped a major beverage company overcome customer loyalty challenges by modernizing its outdated loyalty platform into a seamless, mobile-first experience. As a result, the client improved consumer satisfaction and positioned the platform for expansion into new markets, improving both reach and retention.

Generative AI is redefining how retailers engage with customers by enabling more intuitive, personalized, and seamless experiences across the shopping journey. Moving beyond traditional keyword-based search, generative AI understands the shopper's intent and context—delivering more accurate, relevant results that feel natural and tailored to their needs. Similarly, Unlike basic chatbots, AI-powered assistants offer personalized, context-aware conversations that evolve with the customer. These agents can provide recommendations, support, and engagement throughout the entire customer lifecycle—not just at a single point in time.

Generative AI can strike the right balance between visibility and simplicity—curating what to show and what to hold back. This reduces decision fatigue while still enabling targeted cross-sell and upsell opportunities that feel helpful, not intrusive. By delivering the right product, with the right offer, at the right time, generative AI empowers retailers to serve customers more effectively—boosting satisfaction, loyalty, and revenue. At Turing, we specialize in rapid prototyping for generative AI initiatives, enabling retailers to quickly evaluate the effectiveness and impact of these tools in real-world scenarios.

From fragmented data management -> to data integration

According to the survey, 32% of retail leaders cited poor data quality as a top organizational challenge to AI implementation. Customer data, marketing data, inventory information, sales history and financial transactions are siloed. AI-driven data integration and natural language query systems are helping to close these gaps. Retailers deploying these systems can see an increase in ad hoc requests, broader access to data, and other behaviors that accelerate decision-making and value from existing data assets. Better data can improve performance at both the local store level and through the corporate lens.

Turing has extensive experience leading custom engineering projects focused on data migration and application modernization. Our AI-powered solutions for code generation, code review, and test automation are tailored to client needs and have proven effective in significantly reducing the software development lifecycle (SDLC).

From resistance to change -> to organization buy-in

Organizational inertia remains a persistent challenge. Companies that focus AI implementations on high-visibility, quick-win projects that address staff needs, such as intelligent workforce scheduling or targeted promotions, can demonstrate ROI and help overcome resistance. Retailers can frame AI as a tool that supports, not replaces, staff. AI chatbots can handle FAQs during launches, easing uncertainty. It also boosts communication and helps leaders target support by predicting where challenges—like cashier struggles with a new loyalty program—may arise, enabling timely training and smoother adoption.

At Turing, we understand that one of the biggest barriers to AI adoption isn't just technology—it's change management. Our approach to generative AI focuses on delivering quick wins that are employee-centric, impact-driven, and easily adoptable, helping build confidence and demonstrate tangible ROI early on. We guide change adoption strategies alongside solution delivery—positioning AI as a helpful co-pilot. Our goal is to reduce friction, build trust, and ensure frontline teams view AI as a tool to make their work easier and more impactful.

From hiring and staffing challenges -> To enhanced retention

AI workforce optimization tools are helping to improve many aspects of hiring. AI is being deployed in recruiting, training, and ongoing HR tasks. According to the [Retail Gazette](#), it is possible to reduce labor costs and improve efficiency by forecasting customer traffic and dynamically adjusting retail staff schedules to account for demand, compliance needs, and employee preferences.

From shoplifting and shrinkage -> to reduced theft incidents

Shrinkage remains one of retail's costliest issues, accounting for over [\\$100 billion](#) in annual losses. AI-powered self-checkout systems use cameras and machine learning to detect anomalies that indicate shoplifting, like item mis-scans, product switching, bagging area tampering, or multiple checkout errors, and can even identify repeat offenders through facial recognition.

Section 3:

Revolutionizing Day-to-Day Retail Operations

Driving smarter warehouses, faster stores, and streamlined workflows with automation and intelligence.

Retailers are using AI tools to reshape operations at every level, from warehouses to storefronts, including:

Supply chain and operational automation

Retail supply chains are becoming smarter, faster, and more resilient through the application of AI and robotics. Warehouse automation technologies have dramatically increased throughput and order accuracy. AI tools can help anticipate demand, streamline picking, reduce errors, and work in tandem with robotics tools and human teams to optimize retail backend operations. Brands are even using AI more broadly for procurement, inventory and vendor management.

Early adopters of AI-enhanced warehouse systems report several improvements. According to [McKinsey](#), potential advantages include 7–15% additional capacity, 20–30% reduction in inventory levels with better demand management, and fill rate improvements of 5–8%.

AI-powered store management and loss prevention

In brick-and-mortar environments, AI is transforming all aspects of store management and security. Retailers often struggle with workforce shortages during peak times and managing scheduling during slower periods—all while adhering to increasingly complex compliance requirements and requests from



management and staff. AI-powered tools can help address these issues. However, data quality is critical. As a recent [Harvard](#) report noted, poor data leads to poor scheduling outcomes.

When retailers implement smart scheduling within an AI-ready infrastructure, it can be transformative. [McKinsey](#) found that AI scheduling helps retailers forecast demand, meet staffing needs, balance job-to-work-center allocation, and even streamline dispatch for technical and knowledge workers in a retail context.

Meanwhile, AI-powered loss prevention technologies, including computer vision surveillance and real-time anomaly detection at self-checkout stations, are helping reverse the rising trend of losses. For example, [Forbes](#) noted that when cameras detect an anomaly and send an employee to help, many pilots show an increase in sales due to genuine errors occurring with the scanners.

An [AI-assisted security vendor](#) for self-checkout kiosks noted that a retailer cut its 3% loss rates in half. The company found that 80% of people prompted at self-checkouts to correct a mistake once it's detected by AI chose to do so. Retailers using these tools can see a measurable decline in shrinkage, safeguarding margins without compromising customer experience.

Section 4:

Transforming Retail Knowledge Management and Data Infrastructure with AI

Turning fragmented data into actionable insights for smarter decision-making.

Beyond daily operations, AI is modernizing the foundation of retail organizations: their knowledge management systems and data infrastructures. Retailers are using AI to bridge the gap between raw data and actionable insights for faster decision-making, greater agility, and stronger competitive positioning. In fact, 95% of senior executives across industries, including retail, noted that AI insights were a top goal.

Smarter decision-making:

AI turns complex data into clear, actionable insights, without multi-tab spreadsheets or dense reports. Tools like executive chatbots and narrative dashboards help leaders at every level access what they need, fast.

Streamlined content creation:

GenAI cuts hours off content workflows. Retailers are saving up to 11 hours per week on tasks like promotions, catalogs, and merchandising content while boosting results with AI-driven personalization, reported [MIT Sloan Review](#).

Stronger security and compliance:

AI strengthens data governance and speeds up anomaly detection. Over half of retail leaders surveyed cited cybersecurity as a top AI priority, using the tech to meet evolving regulatory and customer expectations.



Smarter asset creation:

Traditional apparel photoshoots are expensive, time-consuming, and inflexible. Turing is exploring how generative AI can disrupt this model by producing high-quality, photorealistic images of clothing and models without the need for physical shoots. Our focus is on rapid prototyping to evaluate current AI capabilities, identify leading solutions, and explore opportunities to build differentiated, cost-effective alternatives. By leveraging AI for model imagery, background generation, and automated retouching, brands can reduce production costs, accelerate timelines, and scale content creation. The goal is to deliver end-to-end asset creation solutions that integrate personalization and omnichannel readiness.

We also examine how these tools can support creative teams—from photo editors to content managers—and streamline the entire content pipeline. Early demos and iterative testing aim to determine feasibility, ROI, and next-generation features that unlock even greater value.

Section 5:

Designing the Right AI Team and Implementation Roadmap

Building the skills, structures, and partnerships that unlock sustainable AI success.

AI alone isn't enough. Building the right team to deliver on a clear roadmap is key to success. Retail and CPG companies need the right people, partnerships, and planning to turn possibility into scalable performance gains.

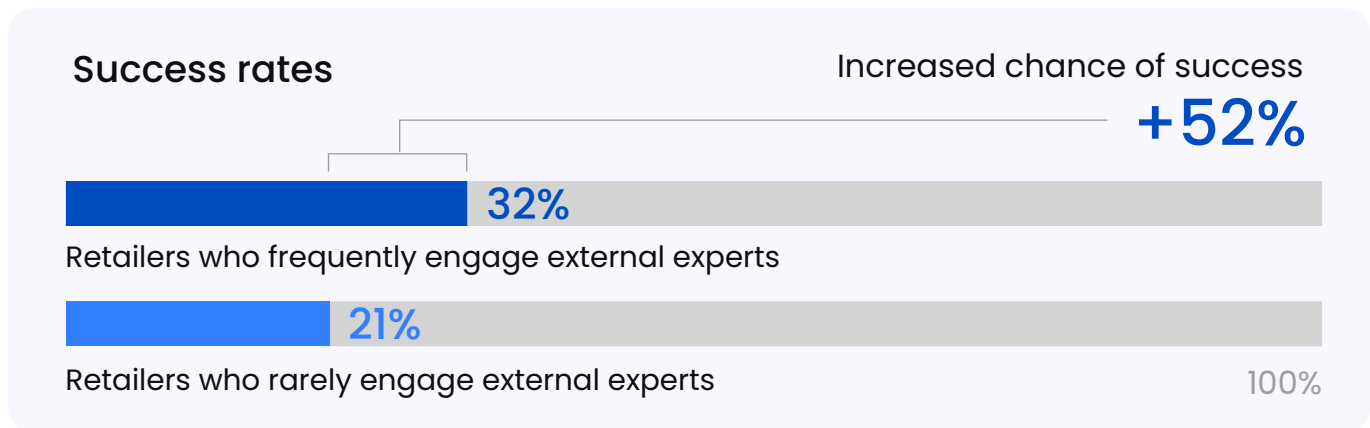
Building effective AI teams

Many mid-sized retailers are forming internal AI teams, while smaller retailers are increasingly outsourcing critical functions. According to Turing's research, most retail companies use external resources to support their AI initiatives: 49% do so frequently, while 36% do so occasionally.

An effective AI team requires several key skill sets, including data science, machine learning engineering, retail operations expertise, cybersecurity, and strategic project management. Additional expertise may be required depending on the use case for AI implementation, the retailer's goals, and how the retailer does business. The right partner aligns AI efforts with business goals and key performance indicators (KPIs), using readiness assessments to identify obstacles, improve data quality, and achieve quick wins. Building multidisciplinary teams internally can be costly and slow. That's why selecting external partners that bring technical excellence, industry-specific knowledge, and a track record of measurable success is a strategic advantage.

Working with the right partner pays off. Retailers who engage external experts report significantly higher success rates. Those who frequently engage outside resources

have a 32% success rate, compared to just 21% for those who rarely engage external help. That's a 52% increased chance of success. In other words, the path to AI maturity is not traveled alone. Strategic partnerships are increasingly seen as AI accelerators.



Creating an AI roadmap for scale

Designing a roadmap for scaling enterprise-wide AI adoption starts with a candid assessment of a retailer's infrastructure readiness, which includes systems integration, data quality, and governance frameworks. Building from a solid foundation enables faster, safer, and more impactful AI deployment.

Start small with minimum viable models: Retailers are finding success by starting small. Many are deploying minimum viable models (MVMs) to prove value quickly, iterate fast, and demonstrate ROI before scaling. A disciplined approach to early pilot projects, focused on clear business objectives and priority use cases, quick wins, and measurable KPIs, can help build internal confidence and lay the groundwork for the time and investments needed to scale AI.

Identify high-impact cases: These may vary among retailers. The key is to identify areas where AI can solve urgent problems and demonstrate a financial return, measurable KPI or process improvement. Leading retailers prioritize AI investments that strengthen the bottom line and drive topline growth, such as dynamic pricing engines, inventory and demand forecasting, hyper-personalized customer engagement programs, and AI-driven loss prevention systems.

With disciplined roadmaps and strategic partnerships, retail leaders can transform AI from a promising technology into a profit center that supports the business's growth in multiple ways.

Section 6:

Overcoming the Challenges of AI Adoption

Avoiding common pitfalls and charting a clear, confident path to enterprise-wide AI impact.

While there are clear opportunities for wins, AI adoption in retail can be stalled or even derailed by persistent challenges. Leaders who feel defeated by AI haven't found effective ways to navigate these obstacles, which requires a proactive, strategic approach. Here are some tips to help drive success:

1 Target the right use cases

In the survey, 25% of retail leaders cited a lack of clear business objectives as a major challenge to AI success. Invest your AI energy where it matters most—use cases such as dynamic pricing, inventory optimization, or personalized marketing.

2 Prove value quickly

If leaders are facing executive skepticism, fear among employees, or simply inertia when it comes to AI, find ways to prove value fast. Pilot projects should be designed to deliver quick wins. Establish clear success metrics upfront, such as cost savings, revenue growth, or customer satisfaction improvements, and showcase how wins benefit both employees and the business.



3 Build in your environment

System integration remains a top barrier for 33% of retail leaders surveyed. Develop AI plans that are centered on compatibility and interoperability, and identify steps such as data cleanup, model fine-tuning, or backend development that can help make AI programs more efficient. Outside partners can help develop these maps and speed up implementation time.

4 Deploy responsibly and sustainably

Responsible AI deployment is essential. In the survey, 36% of retail leaders cited data privacy concerns and 26% cited regulatory compliance as challenges in their AI journeys. Developing clear AI policies and messaging, and highlighting how and where brands use AI, can help build trust and overcome concerns.

Partner for success

Over 80% of retailers surveyed engage external partners to support their AI initiatives, and those that do have higher success rates. Choosing the right partner with technical expertise, proven success metrics, and deep industry knowledge, such as Turing, can dramatically accelerate time to value and mitigate risk. Strategic partnerships continue to emerge as a critical factor helping brands see AI's full potential in retail and CPG settings.

Section 7:

Measuring Success Metrics That Matter

Tracking the financial, customer, and operational outcomes that define AI excellence.

How can a retailer prove their AI initiatives are a success? Clear KPIs. Projects must be measured by the tangible, repeatable value they create. KPIs to consider by category include:



Financial metrics

- **Cost savings:** Reduction in operational expenses, labor costs, shrinkage, and logistics inefficiencies.
- **Revenue uplift:** Increases driven by dynamic pricing, better inventory availability, and enhanced customer engagement.
- **Margin improvement:** Gains achieved by optimizing inventory levels, supply chain costs, and promotion effectiveness.



Customer metrics

- **Churn rate reduction:** Decrease in customer attrition through personalized experiences and targeted offers.
- **Customer satisfaction (CSAT) scores:** Measurable increases in satisfaction for customers post AI-deployment.
- **Conversion and retention rates:** Improvements in both online and in-store conversion metrics following personalized recommendations, marketing, or faster experiences.



Operational metrics

- **Productivity gains:** Improved efficiency in staff scheduling, supply chain operations, and customer support.
- **Reduction in customer service tickets:** Fewer complaints or inquiries due to proactive service and AI-assisted resolutions, like better package tracking or customer communications.
- **IT team productivity:** Faster insight generation and reduced manual data processing through AI-automated analytics.



Workforce impact metrics

- **Shifts in workforce:** Introducing AI may change the number of workers you need or how they're deployed. Forty percent of retail leaders foresee a workforce reduction due to AI, while 31% expect expansion and 29% see no change, according to the survey.
- **Intelligent scheduling:** Improvements in shift alignment, worker satisfaction, retention, and staffing-to-demand ratios.
- **Talent quality:** Employees performing tasks with greater knowledge, fewer errors, or higher customer ratings after interactions.

How to Adopt AI for Your Retail Goals

The full value of AI within complex industries, such as retail, requires strategic vision, disciplined execution, and the right partnerships. Retailers report facing very real challenges, including fragmented data, operational inertia, and talent shortages. The good news is that with the right partners and expertise, these challenges can be overcome.

Ask the right questions

The question leaders are left answering isn't whether AI is right for retail, but where AI can have the most impact. What steps does the organization need to take to achieve success, and what is the fastest way to value while proving a strong ROI?

Find the right partner

Often, the missing piece is an experienced partner who understands the retail industry and can help answer these questions, bridging priority use cases with the steps needed to bring AI initiatives from vision to reality. The data shows that retailers that work with partners like Turing have greater success, reinforcing the critical role of experience, industry expertise, and collaborative innovation.

Build your roadmap

Your roadmap should target high-impact use cases, scaling responsibly, and embedding AI deeply into operational and data infrastructures. Retailers taking this approach are not just keeping pace with change. They're leading the way to the future of retail, one smart AI-informed decision at a time, for better operations today and bottom-line impact tomorrow.

Targeted AI implementations have proven to deliver measurable results across the retail industry, including improvements in profitability, customer retention, and operational efficiency. To stay ahead in an increasingly competitive environment, retailers must prioritize AI not as a future investment but as a strategic imperative.

TURING

Ready to explore how AI can transform your organization?
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intelligence experts are here to assess your goals and show
how our LLM services team can bring your AI vision to life.

[Learn more at turing.com](https://www.turing.com)

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