Intelligent retail

A blueprint for creating value through AI-driven transformation

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Foreword

AI is rewriting the rules of Retail. Are you ready?

Artificial intelligence isn't just transforming retail; it's disrupting it at its core, unlocking game-changing opportunities while forcing retailers to rethink how their entire business functions, from product design through to customer engagement. AI is the ultimate double agent — on one hand, it gives retailers the power to craft immersive, hyper-personalized experiences that captivate customers and streamline operations. On the other, smarter tools empower consumers to hunt for better deals, compare products instantly and align purchases with their personal values — all with just a few clicks.

The customer experience is now a high-stakes battleground, where loyalty can be won or lost in seconds. As consumer expectations escalate, retailers face relentless pressure to deliver seamless, frictionless and deeply personalized interactions across digital and physical spaces. The collision of e-commerce, social commerce, omnichannel shopping and rapidly shifting buying behaviors has pushed traditional retail technology and operating models to their limits. To survive, retailers need more than just smarter tools; they need a radically more intelligent and adaptable approach.

Retailers are already harnessing AI to supercharge personalization, predict customer needs before they arise, automate customer service with near-human precision and optimize inventory in real time. But this is just the beginning. Over the next five years, AI will likely obliterate the line between online and offline experiences, transforming retail into a seamlessly intelligent, hyper-personalized ecosystem where every interaction feels frictionless.

But here's the catch — getting there isn't automatic. To unlock this future, retailers need more than scattered AI experiments or isolated tools. They need a clear, strategic AI roadmap, modernized systems and collaborative teams that can bridge the gaps between data, technology and customer experience.

This report, based on extensive research and interviews with leading retailers, is your guide to navigating this transformation. The future is still being shaped, but emerging trends and patterns provide a clear path forward. By identifying key actions that form a no-regrets approach, we'll explore how to scale AI effectively, navigate common challenges and help unlock new opportunities for growth. Those who move fast, adapt wisely and embed AI at the core of their business won't just keep up — they'll set the pace.

> "In a sector already challenged by a high technology debt, retailers cannot look at AI as yet another line to manage in constrained budgets, or as the panacea for their current challenges. To unlock its potential, retailers must overcome inertia, embrace transformation and integrate AI as a core enabler of customer-centric sustainable growth."

Isabelle Allen
Global Head of Consumer & Retail

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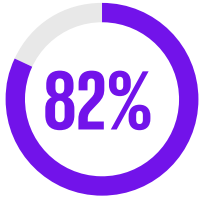
At a glance

AI experience in Retail is extensive

56% have been using AI for over 3 years

47% of retailers state that AI has become core to their business

Retailers have high expectations



believe that retailers that embrace AI will develop a competitive edge over those who do not

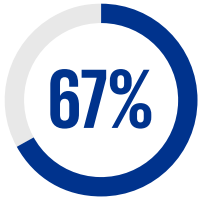
47% state that AI has led to new product and service developments

But the pressure is on to prove ROI

62% face significant pressure from shareholders to show immediate ROI on AI investment

71% anticipate an ROI of more than 10 percent from AI in the next year

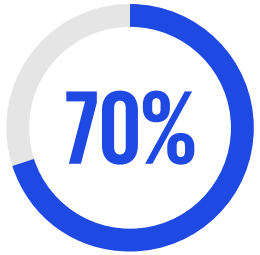
AI spending in the next year will increase significantly



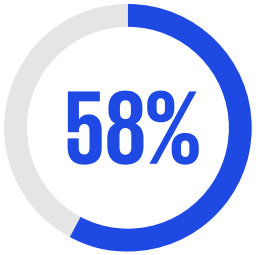
will increase the percentage of global budget spent on AI

1/3 say AI spending will increase by more than 20 percent

AI goals are clear

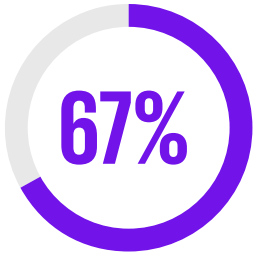


are seeking revenue growth



are seeking efficiency improvements

The benefits are flowing through



have seen efficiency improvements

have seen a moderate to very high ROI from their investments so far

Source: Intelligent retail: A blueprint for creating value through AI-driven transformation, KPMG International, 2025

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Introduction

Retail success has always been about mastering the detail — now AI is here to master them for you.

Former Costco CEO Jim Sinegal famously observed that "retail is detail" success is about getting one million small details right every single day.[1] For decades, retailers built intricate, interdependent workflows to handle that complexity. But those legacy operating models and legacy systems, designed for a world of in-store, physical transactions, are now struggling under the pressure of today's hyper-connected, always-on, infinite-choice shopping landscape. Historically, retailers would call all the shots; now the tables have turned and there has been a systemic shift from transaction to relationship-based commerce.

Retailers have rushed to plug the gaps — rolling out AI in silos to boost efficiency and control costs, personalize experiences and drive sales. However, our research finds that most of these AI efforts are stuck behind departmental walls, with data trapped in isolated systems. Online, in-store, mobile, marketing, inventory, payments and last-mile delivery — none of them share data in the way AI needs it to. Traditional retail tech, built for linear supply chains and one-size-fits-all customer journeys, simply can't keep up with AI's real-time requirement for data and speed.

A retail future powered by autonomous AI agents.

In the future, autonomous AI agents (agentic) won't just support retail operations — they'll run them. Imagine intelligent systems that autonomously interact with customers, adapt in real time to shifting preferences, manage end-to-end shopping experiences, and dynamically optimize inventory, pricing and service.

AI agents will likely become always-on digital advisors, delivering hyper-personalized experiences, anticipating needs before customers even think of them and automating routine service with near-perfect precision.

This report is your blueprint for unlocking AI's full value.

For retailers, AI promises to introduce dynamic pricing, range optimization, workforce arbitrage, improve customer experiences and on-shelf availability, and lower cost of operations. We'll walk you through how this can be delivered through the three phases of AI value — a framework designed to help retailers cut through the noise, align investments and prioritize the right moves at the right times.

Because the next generation of retail won't be built on outdated systems and scattered AI tools — it'll be driven by smart, connected ecosystems that flex and evolve in real time.

of respondents believe that retailers that embrace AI will develop a competitive edge over those who do not.

[1] Logomaker, "9 Quotes for Small Businessess and Startups from Costco Cofounder, James Sinegal", December 2014

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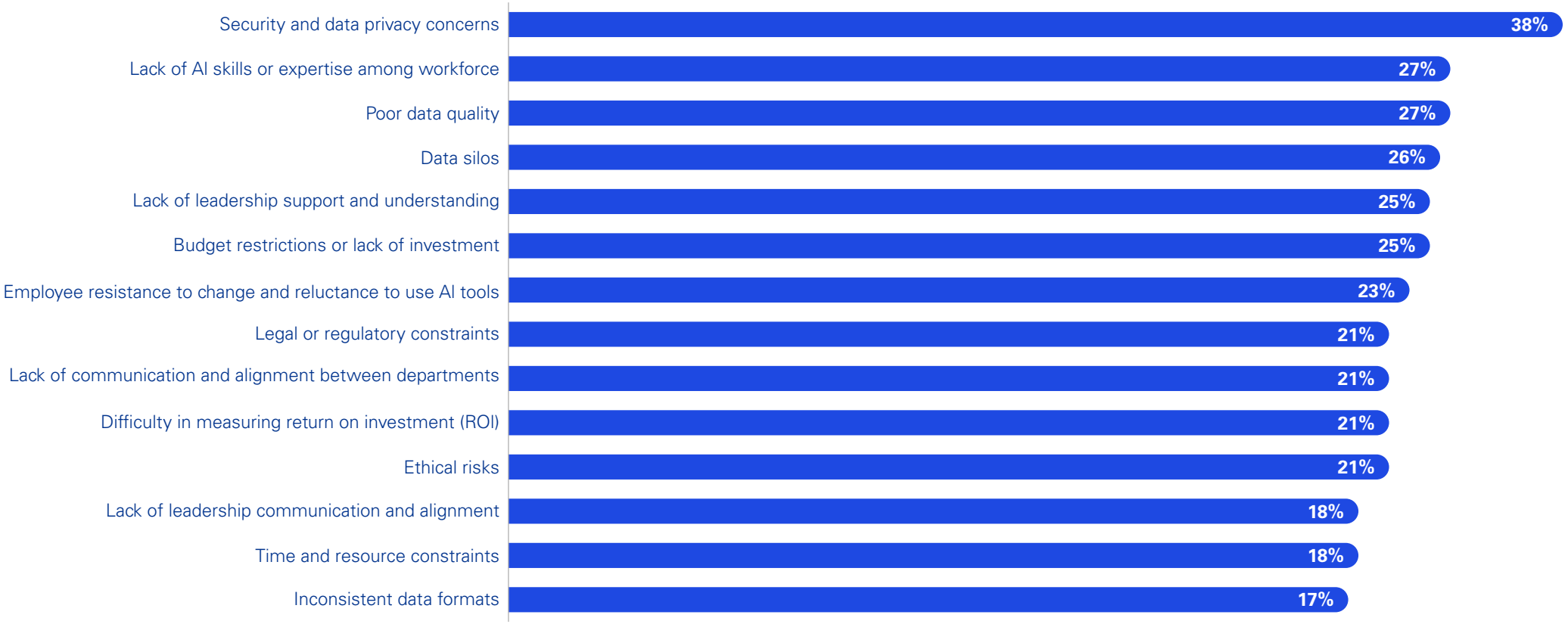
Figure 1: Data concerns and lack of skills emerge as top challenges

Percentage who say their organization has faced the following challenges when integrating AI



What challenges has your organization faced when integrating AI?

Source: Intelligent retail: A blueprint for creating value through AI-driven transformation, KPMG International, 2025

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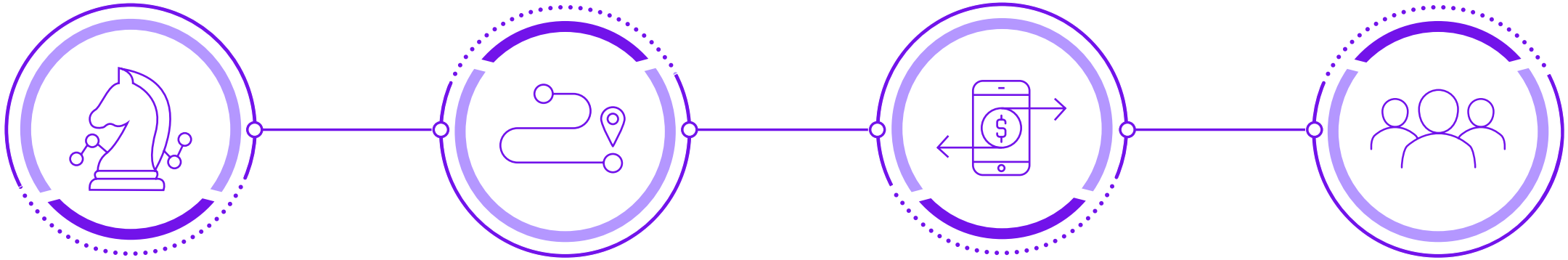
Retailers tend to stay focused on day-to-day activities — but capturing value from AI demands a more strategic perspective. Here, we identify four critical considerations that will help retailers prepare for AI.



Design an AI strategy that aligns with core competencies and drives value

Leaders should articulate their level of ambition — do they want to be a pioneer, or are they comfortable being in the pack? In either camp, leaders should define a clear, organization-wide vision for AI that drives growth and scale, lowers operating costs, and improves margins, product availability and customer outcomes. This vision should be specific and actionable, and tied to measurable results. Metrics can include customer engagement, conversion and satisfaction, overstock, stock-outs and workforce scheduling.

Build trust into the transformation roadmap from the outset

Retailers already navigate stringent data privacy regulations, such as GDPR and CCPA, as well as evolving global and regional regulations. However, AI brings a new set of governance considerations and risks. A governance model enabled by sound AI principles, policies and procedures will help ensure that the program is built on trust. Similarly, cybersecurity is crucial, as AI systems are often integrated across multiple platforms, creating potential vulnerabilities.

Create a sustainable technology and data infrastructure for AI adoption

Data is the foundation for all AI initiatives, including autonomous agents, which require a single view of customer and inventory. Retailers should build a robust data governance framework, focusing on quality, integration, security and long-term scalability. This includes investing in enterprise-grade data platforms that will support the structured and unstructured data sources necessary to power AI.

Build a culture that uses AI to uplift human potential

AI adoption will require extensive engagement capturing the hearts and minds of employees. With AI, employees can focus on delivering service that leaves a lasting and positive impression. Happier customers mean fewer difficult interactions, which reduces stress on front-line employees and leads to more productive engagements. AI also empowers employees to take on more fulfilling roles, deepening their skill sets and contributing to a more engaged and motivated workforce.

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Research findings

The state of the industry

AI adoption in the retail sector is somewhat piecemeal, with many retail companies piloting AI solutions in isolated functions or departments largely in the back office. The landscape is characterized by creative single-point implementations but remains uneven overall.

> While we didn't feel we had to be the first to adopt AI, we certainly wanted to be among the first to test and learn.

Chief Financial Officer, Leading global retailer (Luxury goods) — Japan

Most retailers appear stuck in analysis paralysis, coupled with proof of concept fatigue. They are looking to see who the winners are when it comes to AI, seeing fast-following as a lower-risk route. Leading companies in the sector, however, are already demonstrating significant progress and early signs of tangible value.

There are promising returns on initial AI investments

AI is delivering encouraging returns, with 55 percent of retailers reporting an ROI of over 10 percent and 21 percent seeing returns exceeding 30 percent. AI has driven significant productivity gains (33 percent), enhanced efficiency through cost reduction and supply chain improvements (67 percent) and spurred innovation in new products and services (47 percent).

Its biggest functional impacts are in IT (61 percent), marketing (53 percent) and customer service (53 percent), while 64 percent note moderate impacts across multiple functions.

Autonomous agentic technology is gaining traction

Retailers are increasingly combining AI with complementary technologies. Gen AI leads adoption at 64 percent, followed by predictive analytics (58 percent) and robotic process automation (51 percent).

Autonomous systems and agentic AI are also gaining traction, with 54 percent of retailers making significant use of these technologies to drive operational efficiencies and innovation.

Progress is being made on AI risk management

Retailers are making strides in addressing the risks associated with AI. Employee training has emphasized responsible use, with 61 percent receiving in-depth training on ethics and guardrails and 38 percent focusing on practical applications. Trust in AI is growing, with 83 percent of leaders expressing confidence in AI outputs.

Retailers often struggle to build a business case for AI, but

71% **of respondents anticipate a significant ROI for their AI investments in the next year.**

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Barriers to progress

The rapid evolution of technology is fueling inertia

The rapid pace of AI development is creating uncertainty among retailers, with 75 percent preferring to wait for the AI landscape to stabilize before making significant investments. Additionally, 60 percent feel overwhelmed by the volume of AI-related information and hype, and 56 percent express concerns about the level of control AI technology providers might exert over their business.

Regulatory and compliance constraints

Evolving data privacy laws (e.g. GDPR, CCPA) impose strict controls on AI-driven personalization and customer data usage. Retailers must navigate complex compliance requirements that may vary by region. In a polarized geotechnical world, this challenge is further compounded when organizations evaluate the available options. They may consider experimenting with the new generation of powerful open-source models and tools that can provide viable solutions.

Short-term economic trade-offs

Inflation, supply chain disruptions and shifting consumer spending patterns limit investment in AI innovation. Retailers may prioritize short-term survival over long-term AI transformation.

Consumer trust and ethical concerns

Increasing public scrutiny of AI's role in decision-making, particularly in pricing, personalization and surveillance (e.g. facial recognition), can create resistance to adoption.

Fragmented and unreliable supply chains

AI-driven demand forecasting and inventory management depend on stable supplier networks. External supply chain volatility (e.g. geopolitical tensions, raw material shortages) disrupts AI's ability to create value.

Technology infrastructure gaps

Retailers rely on external vendors, cloud providers and telecom networks for AI-powered operations. Poor access in some regions or reliance on legacy infrastructure limits AI's scalability.

feel overwhelmed by the volume of AI-related information and hype, and 56 percent express concerns about the level of control AI technology providers might exert over their business.

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The AI vision is still being formed

While AI is a growing priority, a clear strategic vision outlining the organizational appetite for AI is critical. Only 24 percent have a clear, ambitious vision for AI as a central driver of organizational transformation; building a compelling business case to unlock funding internally is impossible without it.

Legacy structures a major barrier

Outdated operating models are a significant inhibitor to scaling AI. Many retailers still operate with legacy structures — 46 percent entirely functional and 36 percent combining functional and agile approaches. These mixed models create complexity, making it challenging for organizations to align AI objectives with strategic goals. Only 15 percent of retailers report consistent alignment between their AI initiatives and overall business strategy.

Diverse, disconnected implementation models

The retail sector lacks a unified approach to AI implementation. Only 19 percent of retailers have a highly specialized and influential AI team driving strategy across the organization, while others rely on fragmented models: 18 percent employ function-specific approaches, 28 percent utilize an AI Center of Excellence and 20 percent are IT-driven. This reflects the wide variety of solutions in use but also highlighting a lack of standardization.

Data readiness the central challenge

Data management continues to be a critical barrier to scaling AI in retail. Seventy-four percent of retailers identify data as their primary challenge, with only 28 percent achieving system-level data integration. Furthermore, just 13 percent have a data warehouse with real-time updates, and only 7 percent have fully automated data integration, highlighting significant gaps in data readiness for AI initiatives. Fifty-five percent state managing data privacy is their largest risk area.

> If you put bad data into the model, you get bad results. If you attempt to implement models first and your underlying dataset is poor, then it's going to exacerbate the problems that you've already got. The integrity of the data is something that we're prioritizing because that could have potentially worse consequences further down the line.

Chief Technology Officer, Leading retailer (Wine wholesaler and importer) — UK

Only

19 percent

of retailers have a highly specialized and influential AI team driving strategy across the organization, while others rely on fragmented models.

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Building the intelligent retailer

> A well-run corporation is like a Swiss watch with lots of little gears. If you wanted to make it digital, and you took out one of the gears and put a transistor in, it wouldn't be a great way to make it more digital. You have to have a holistic plan about how all the pieces fit together.

Erik Brynjolfsson — Professor and Senior Fellow at the Stanford Institute for Human-Centered AI (HAI), Director of the Stanford Digital Economy Lab

Successfully implementing AI in a retail organization involves a strategic approach to building capability across foundational, functional and enterprise layers. Establishing a transformation management office is crucial for aligning AI strategy, value orchestration and project delivery across all layers. The body coordinates initiatives, establishes standards and best practices, and facilitates cross-functional collaboration to drive accountability and enterprise-wide value.

Enterprise

This layer orchestrates transformational, enterprise-wide change, starting with how AI can adjust strategy, business models and key objectives. It defines operating model shifts, workforce evolution, and risks and controls. This layer places AI initiatives on a roadmap and runs a transformation office to help manage funding and track benefits, adjusting priorities dynamically to help maximize value delivery.

Functions

This layer drives AI-enabled transformation across business functions, prioritizing customer-facing value streams and end-to-end processes and workflows. AI applications, agents and robotics are embedded in the workflows. Functional operating model changes are delivered to realize potential benefits.

Foundations

This layer establishes the AI-first technology stack, including infrastructure, cloud and choices on partner ecosystems. High-quality enterprise data needs to be curated, and diverse models are likely to be deployed to handle domain-specific AI and support AI agents. An increased focus on cybersecurity for AI is needed as well as a plan for other emerging technologies.

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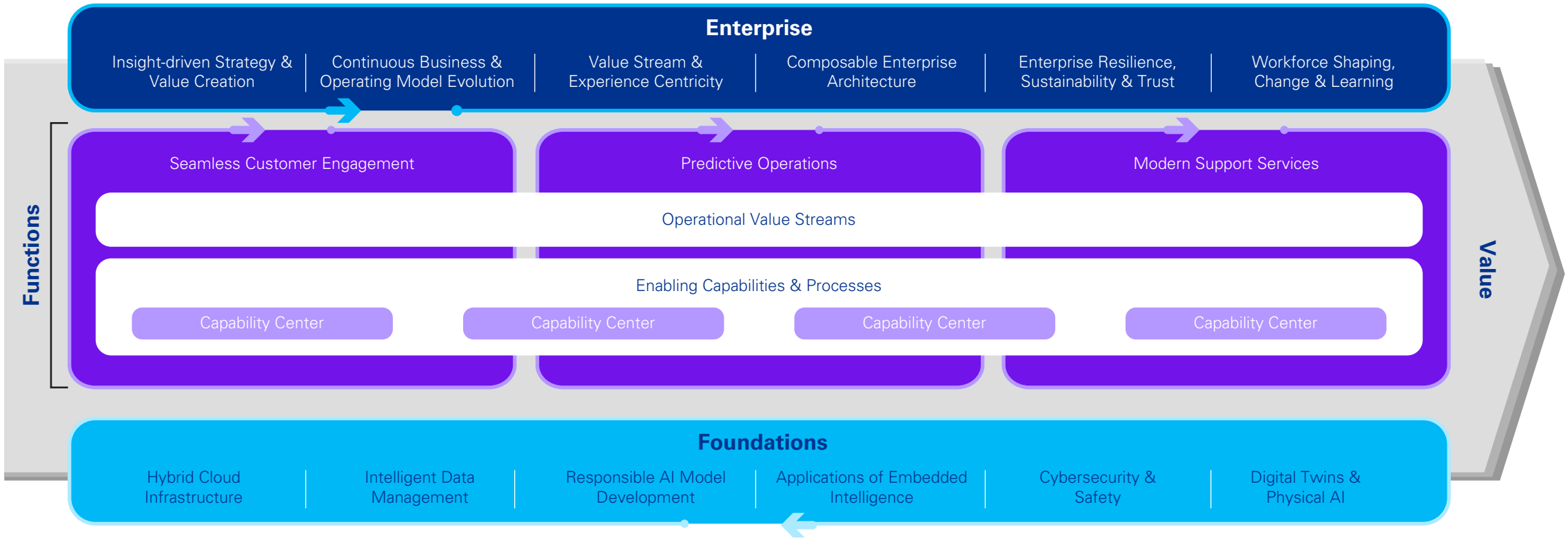
Blueprint for intelligent retailer

This blueprint outlines the transformation of an AI-powered, customer-centric retailer. The intelligent retailer leverages advanced technologies, personalized experiences, data-driven insights and automated operations to enhance efficiency, innovation and resilience. Focused on embedding intelligence across value streams, capability centers and processes, it ensures seamless customer interactions, robust risk management, intelligent product manufacturing and future-ready adaptability to thrive in the intelligent economy.



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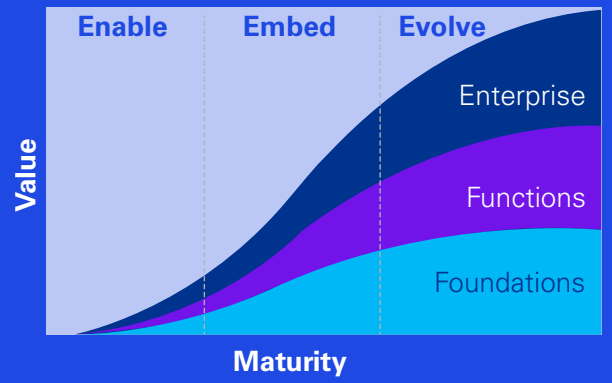
The journey to become an intelligent retailer

Effective AI-enabled transformation goes beyond technology implementation. By examining leading practice, we have identified that retailers can increase capability and value across three phases of AI transformation.

This provides a structured yet flexible framework for navigating the complexities of AI adoption. It balances the need for short-term efficiency gains with the imperative to prepare for future growth and innovation.



Enable

Enable people

The Enable phase focuses on empowering people and building AI foundations. Organizations appoint a responsible executive, create an AI strategy, identify high-value use cases, boost AI literacy, align with regulations and establish ethical guardrails. AI pilots are launched across functions, while cloud platforms and pre-trained models are leveraged with minimal customization.

Embed

Embed AI in work

The Embed phase integrates AI into workflows, products, services, value streams, robotics and wearables, delivering greater value. A senior leader drives enterprise-wide workforce redesign, reskilling and change, embedding AI into operating models with a focus on ethics, trust and security. AI agents and diverse models are deployed, supported by cloud and legacy tech modernization, while enterprise-wide data enhances operations.

Evolve

Evolve the enterprise

The Evolve phase transforms business models and ecosystems, using AI and frontier technologies to solve large sector-wide challenges. AI can orchestrate seamless value across enterprises and partners. Emphasizing ethics and trust with real-time security, this phase uplifts human potential with broad and deep workforce training, fostering a creative, innovative and value-driven future.

A company may have a portfolio of initiatives aimed at any level of the operating model within each phase. The ratio of effort and investment across the phases will vary as the organization matures. Initially, most resources will focus on phase one, with a small effort to explore enterprise-wide transformation. Over time, as foundational efficiencies are realized, more effort is invested in phase two, while, with an eye on the future, long-term investments in phase three start to lay the groundwork for transformative innovation. This dynamic balancing act ensures retailers can achieve immediate results while setting themselves up in the right way for future success.

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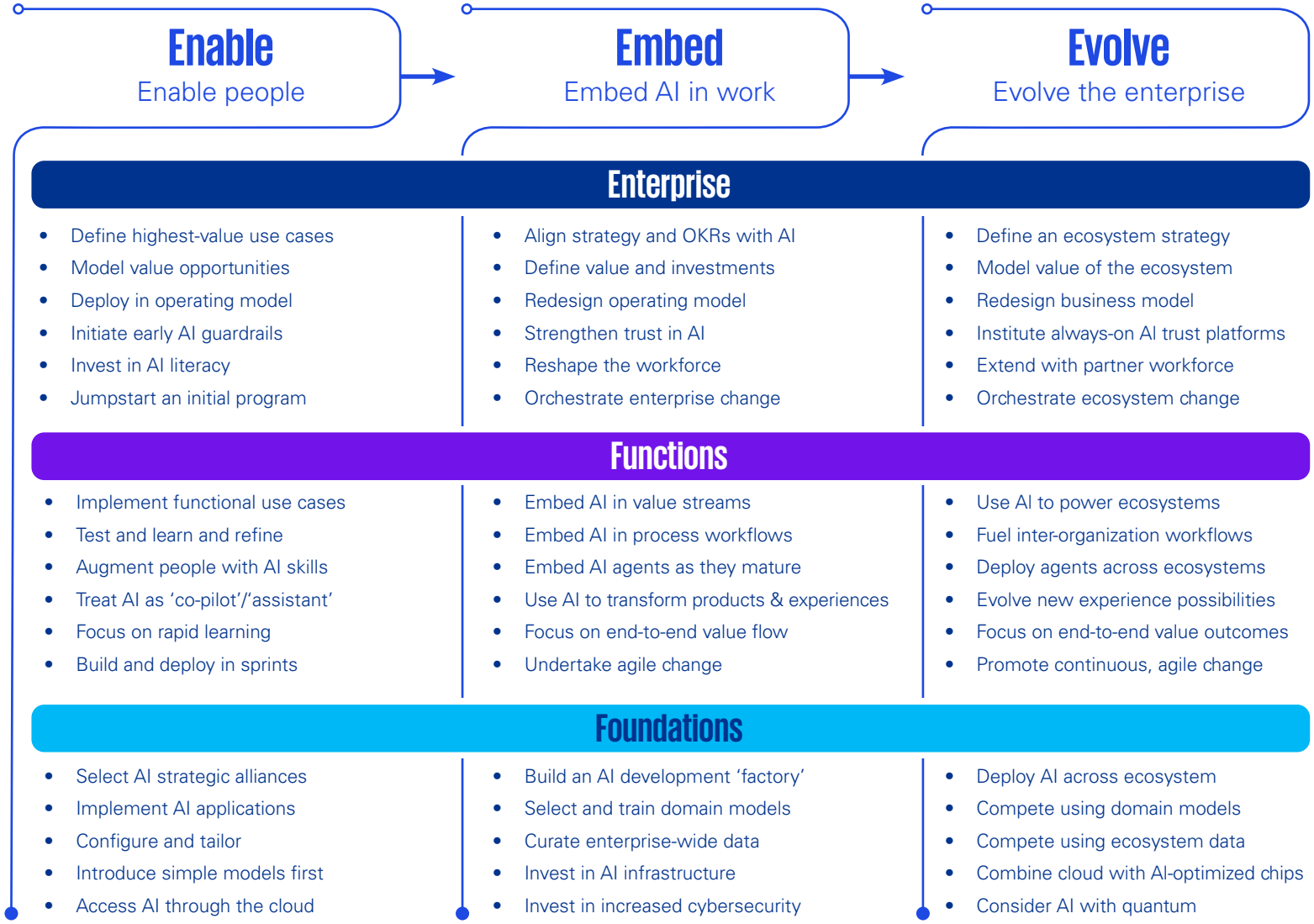
Phases of the AI journey

Focusing on maturity across the three phases — Enable, Embed and Evolve — is critical for sustained value creation. It requires increasing the maturity of the capabilities that are vital to the foundations, functions and enterprise layers simultaneously.

At the enterprise layer, increased AI maturity involves orchestrating AI across functions to enable enterprise-wide innovation and strategic alignment. Without a balanced focus on all three layers, organizations risk missing opportunities for transformation.

At the functions layer, AI should be embedded into key value streams, optimizing specific processes and creating improved outcomes, such as more compelling products and services, and more engaging, end-to-end employee and customer experiences.

At the foundations layer, organizations should build up the new AI-first technology stack, through a process of technology modernization. Infrastructure, data, models and applications can all become optimized for delivery of AI.



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The first phase: Enable

Enable people with AI

The Enable phase is about enabling people and establishing the foundations for AI adoption. At the enterprise level, this includes appointing a responsible executive, developing an AI strategy, identifying high-value use cases, increasing AI literacy, aligning with regulations and introducing ethical guardrails.

At the function level, businesses pilot AI solutions across various areas, building skills, fostering innovation and learning from these initial implementations. At the foundation level, organizations use cloud platforms and pre-trained AI models from strategic providers with limited customization. This phase focuses on creating awareness, experimentation and alignment to ensure the organization is prepared for broader AI integration.

Figure 2: AI adoption focuses heavily on operational gains

Percentage who say their organization wants to achieve the following through using AI

Which of the following goals does your organization want to achieve through using AI?

Source: Intelligent retail: A blueprint for creating value through AI-driven transformation, KPMG International, 2025

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To guide clients' AI strategy and investments, KPMG in the US analyzed vast amounts of data to quantify the Gen AI opportunity. The analysis calculated the potential value at stake from fully deploying and adopting Gen AI across all potential uses within companies.

Over

17 million companies globally assessed.

After looking in depth at

7,000 companies employing

72 million people and pressure-testing results with

500 clients,

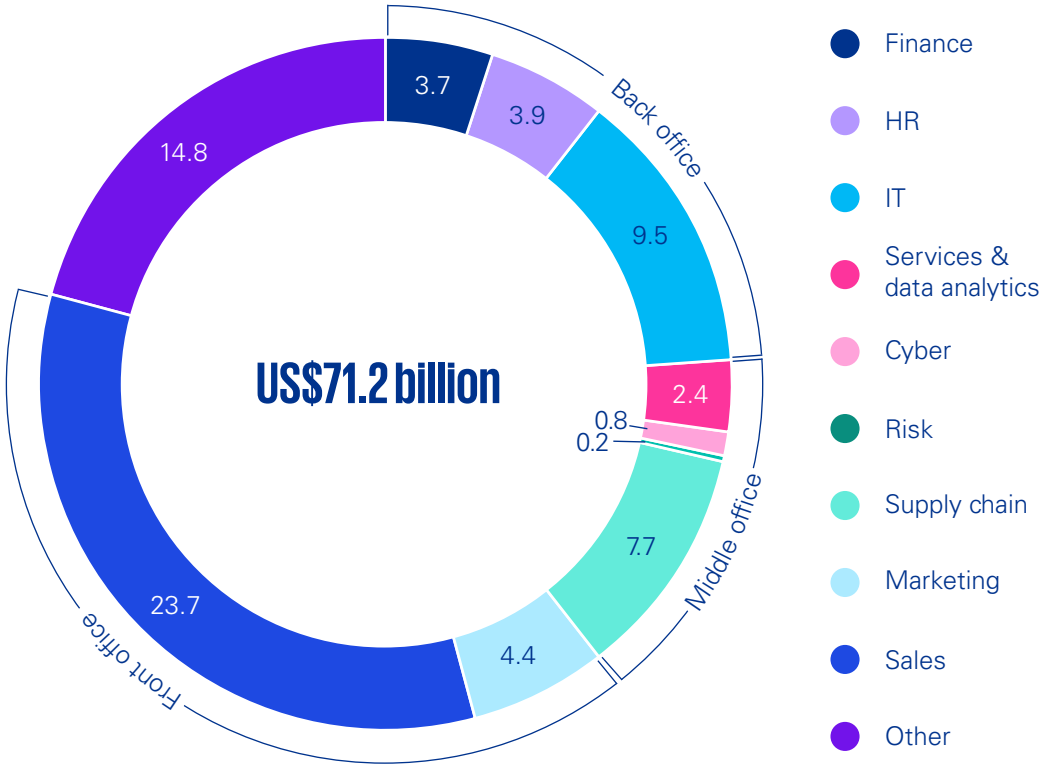
the results equate to

4–18% EBITDA* improvement in labor productivity alone.

Our calculations and methodologies show the potential value opportunity within the retail sector in the chart to the right.

*EBITDA = Earnings before interest, taxes, depreciation and amortization

Figure 3a: Gen AI opportunity by function: Retail(Values in US$ billions)



Source: Quantifying the GenAI opportunity, KPMG in the US, February 2025

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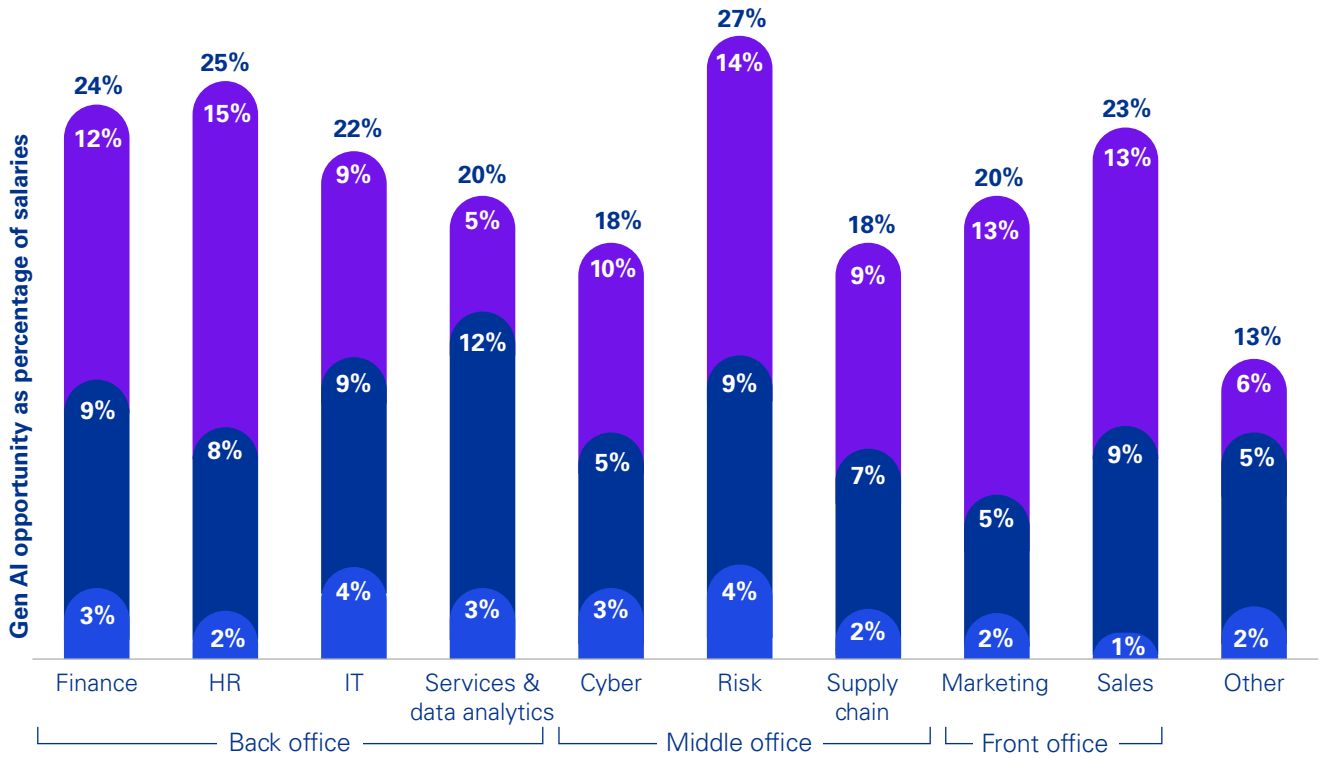
Figure 3b: Gen AI opportunity, task complexity breakdown: Retail



Low complexity

Based on tasks that are relatively simple and can be effectively augmented using readily available Gen AI tools such as Copilot, ChatGPT and other out-of-the-box technologies.

Medium complexity

Based on tasks that have potential for Gen AI augmentation but may necessitate the development of more integrated and customized solutions.

High complexity

Based on tasks that have potential for Gen AI augmentation but will likely require the creation of integrated and sophisticated solutions, as well as comprehensive governance and change management to enable adoption.

Note: Figure 3b shows the Gen AI opportunity as a share of total salary cost by degree of complexity within each function for all retail companies in the sample. The axis represents share of the Gen AI opportunity as a proportion of the total salary cost by degree of complexity within the function. Percentages in the graph were rounded to the nearest whole number.

Source: Quantifying the GenAI opportunity, KPMG in the US, February 2025

Top 10 areas of opportunity: Retail

01 Customer relationship management

02 In-store analytics

03 Performance optimization

04 Sales enablement

05 Marketing and sales

06 Event prediction

07 Operations execution

08 Customer sentiment analysis

09 Code generation and optimization

10 Chatbots and customer support

Source: Quantifying the GenAI opportunity, KPMG in the US, February 2025

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Key phase one use cases

In the first phase of AI adoption within retail, the focus is on enabling employees with targeted tools that enhance their efficiency, productivity and ability to deliver a superior customer experience. These AI-driven use cases streamline routine tasks, provide real-time insights and support decision-making, empowering frontline staff and back-office teams alike.

AI-powered personalized selling, through virtual assistants. These AI systems, integrated into apps or websites, handle repetitive customer queries like order tracking, product availability and return policies. For example, Sephora's virtual assistant uses AI to provide tailored beauty recommendations based on customer preferences and past purchases.[2] This enhances the customer experience with faster, more personalized interactions.

Dynamic pricing: By analyzing competitor pricing, customer behavior and seasonal trends, AI can suggest optimal pricing strategies, allowing retailers to maximize margins without sacrificing sales. This ensures competitive pricing while maximizing sales and profits.

Chatbots for customer service: AI-powered chatbots can handle a range of basic customer inquiries, from store hours to product details, while also providing information on returns, package tracking, loyalty/points balances and refund policy, reducing the load on human agents and improving response times for customer support.

Customer segmentation: AI is analyzing vast amounts of real-time data to uncover deeper insights into consumer behaviors, preferences and purchasing patterns. By leveraging machine learning algorithms, retailers can move beyond traditional demographic-based segments to create dynamic, micro-targeted groups based on lifestyle, intent and sentiment. This enables hyper-personalized engagement, tailored product recommendations and more relevant customer experiences.

AI systems, integrated into apps or websites, handle repetitive customer queries like order tracking, product availability, and return policies.

[2] Cut the SAAS, "Beauty and the Bot: How Sephora Reimagined Customer Experience with AI", February 2024

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Demand forecasting and inventory optimization: AI-driven demand forecasting, using real-time data, enables retailers to predict stock requirements accurately, reducing overstock and stockouts. This helps retailers optimize inventory, lowering costs while ensuring product availability. Supermarkets use AI to do demand forecasting and replenishment. It improves forecasting accuracy, which leads to less loss of stock due to perishable items being lost, less loss of sales due to stockouts, and it increases sales and inventory turns. It ultimately improves the customer experience. Global retailers such as Adidas employ AI and machine learning algorithms to predict product demand accurately. This enables the company to position popular products strategically, reducing lead times and improving service quality.

Advertising optimization: An AI system, trained on the retailer's unique data, can analyze an unsuccessful advertising campaign to identify why it didn't perform well. It doesn't just look at obvious reasons like timing or messaging but also considers broader factors, such as competitors' actions during the same period. The AI system then ranks these causes by their impact and suggests practical steps the retailer can take to prevent similar sales drops in the future.

Integration of handheld devices: Tablets and other devices can revolutionize the in-store customer experience by seamlessly connecting associates with a wealth of customer insights. With just a few taps, associates gain real-time access to customers' buying history, loyalty or rewards program status, payment and shipping preferences, preferred sizes, and even their online browsing activity. This rich, AI-driven data enables associates to provide highly personalized service that narrows the gap between in-store and online experiences.

Virtual try on: This allows customers to see how clothes, accessories or even makeup will look on them in real time — whether online or in-store. Using advanced computer vision and augmented reality (AR), AI can map products to individual body types, skin tones or facial features, providing a more accurate and personalized fit. This not only enhances the shopping experience but also significantly reduces return rates by helping customers make better-informed purchasing decisions, leading to higher satisfaction and lower reverse logistics costs for retailers.

Store layout: Analyzing customer traffic patterns, purchase behaviors and sales data to optimize product placement and in-store flow. Using advanced analytics and computer vision, AI can identify high-traffic zones, predict shopper movements and suggest strategic product placements that maximize visibility and boost sales.

Our company's purpose in using AI is to enhance efficiency, optimize customer experience and strengthen market competitiveness. ”

Director, Large retailer (Grocery) — China

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AI and the employee experience

In most countries, retail is one of the largest employers, and AI-enabling frontline employees will be a pivotal opportunity for driving efficiency, customer experience and business growth.

For employees, AI is empowering retail employees by automating routine tasks and providing real-time insights, enabling them to focus on more strategic customer-facing activities. Tasks like inventory tracking, price adjustments and restocking alerts are now handled by AI systems, improving accuracy and efficiency.

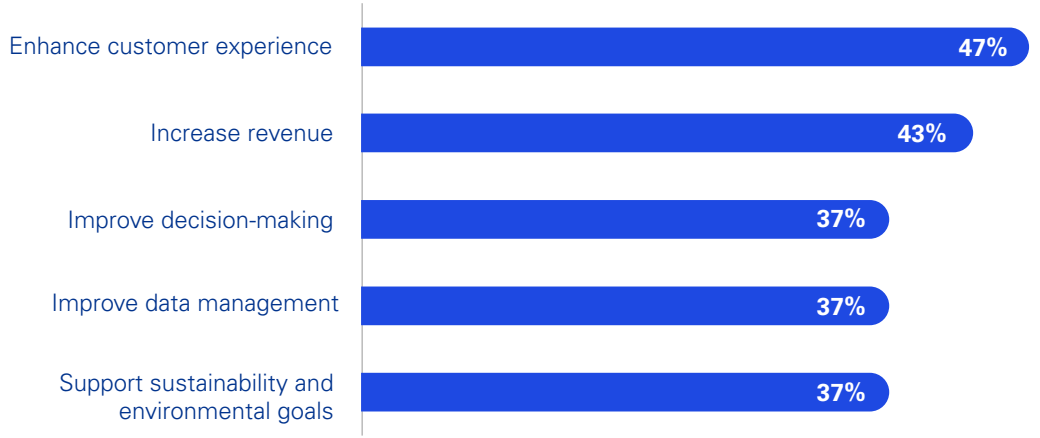
AI-powered systems also keep retailers agile as trends emerge. For example, natural language processing tools can analyze customer feedback to surface insights into product quality or service interactions, while machine learning algorithms can quickly identify sales trends.

In addition to operational benefits, AI supports employee development. AI-driven learning platforms offer personalized training in the right moments, guiding associates as they serve customers in real time. Predictive analytics can also identify skill gaps and recommend training paths, fostering a culture of continuous learning. By enabling employees to focus on high-value activities and equipping them with advanced tools and training, AI enhances job satisfaction and performance across the retail workforce.

Figure 4: AI maturity deepens focus on operational gains, with strategic goals lagging behind

Percentage who say their organization wants to achieve the following through using AI (top 5)

Early AI maturity



Which of the following goals does your organization want to achieve through using AI? (Maximum 5)

Source: Intelligent retail: A blueprint for creating value through AI-driven transformation, KPMG International, 2025

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Case study

Electronics retailer — Using AI-powered virtual assistants to enhance customer service

> Our ambition is to apply more AI technologies to different departments within the company. The logistics department can initiate the use of a smart inventory management system, moving away from traditional Excel spreadsheets for statistics [and] the sales department can leverage AI algorithms to optimize promotional activities.

Director (Large retailer) — China

Conversational AI

The retailer introduced a conversational AI assistant powered by natural language processing (NLP) and machine learning to handle customer interactions across its website, mobile app and social media channels. The virtual assistant can address common queries, such as product availability, shipping status and warranty information, while also guiding customers through troubleshooting and setup processes for electronic devices.

One key innovation is the assistant's ability to integrate with the retailer's inventory and logistics systems. Customers can receive real-time updates on stock availability and shipping timelines, significantly reducing frustration and increasing transparency.

Additionally, the virtual assistant escalates complex queries to human agents with a seamless handoff, including detailed conversation histories to ensure continuity in service.

The retailer also incorporated sentiment analysis into the assistant's functionality, enabling it to detect customer frustration and prioritize such cases for immediate resolution by live agents. This has improved overall customer satisfaction scores by 20 percent within the first six months of implementation.

Exceptional ROIs

The impact of this single AI-powered use case has been profound. The retailer reduced customer service response times by 40 percent, cut operational costs by 25 percent through automation and enhanced customer loyalty by providing efficient, round-the-clock support.

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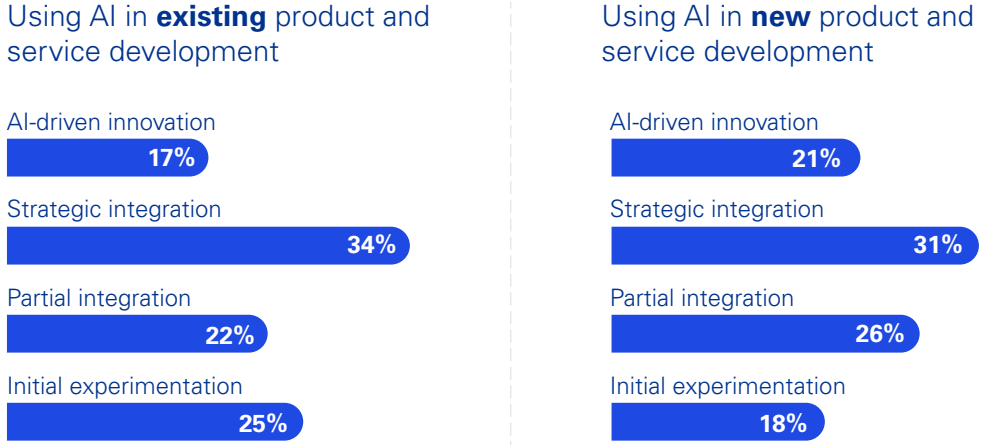
The second phase: Embed

Embedding AI in the flow of work

The Embed phase integrates AI into end-to-end workflows, products, services and value streams, delivering greater value and transforming how work is performed across the enterprise.

Figure 5: The retail sector is yet to fully leverage AI's potential for new services and enhancements



To what extent (if at all) is your organization using AI in existing products or services?
To what extent (if at all) is your organization using AI to develop new products or services?

Source: Intelligent retail: A blueprint for creating value through AI-driven transformation, KPMG International, 2025

Here, AI enables large teams to complete complex tasks, enhancing efficiency. A senior leader, supported by a capable transformation office, oversees enterprise-wide change, setting strategic goals and embedding AI in to operating models, robotics and wearable devices.

This phase emphasizes ethics, inclusion, safety, security and trust. AI agents, along with diverse models (large and complex, small and low cost, open, closed and domain-specific) are embedded into workflows, supported by data from various sources.

Infrastructure combines cloud resources with on-premises GPUs, with a strong focus on security.

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> You need to allow your team to experiment and allow them to fail because there is no clear path to success. There's a lot of failures along that path and having a team that knows the leadership is comfortable with that and will allow for that, will facilitate people to move faster and take risks. Being data driven and more risk tolerant and failure tolerant is important to successful leadership.

Head of AI, Canadian subsidiary of an international retailer (Grocery and general merchandise) — Canada

The focus is on breaking down silos, redesigning the ways retailers unlock more complex value opportunities in the second phase. AI becomes embedded across the retailer's core functions, enabling dynamic decision-making, real-time insights and predictive personalization. Shared data platforms foster collaboration and a culture of agility and innovation. Customer satisfaction scores, cross-sell effectiveness and speed-to-market join efficiency and cost reduction as key metrics of success.

Extending the eco-system

Retailers are already thinking beyond their immediate boundaries and forming partnerships as platform models become more prevalent. However, breaking down silos is a critical foundation for building retail partnerships and expanding the ecosystem, as they provide a clear, customer-centric framework that aligns processes, data and goals across organizations — enabling seamless collaboration, shared insights and co-created value.

The move to value streams

The challenge for retailers is to help ensure that interactions mediated through AI deliver on the brand promise and make an emotional connection with customers. Central to this is the concept of value streams: the end-to-end delivery of value to the customer.

Value streams in retail make the experience seamless by aligning processes, technology and teams around delivering consistent and connected customer journeys. Instead of operating in silos (e.g. separate teams for in-store, online and fulfillment), value streams focus on the end-to-end flow of activities that directly create value for the customer.

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Key value streams in retail

Customer acquisition and engagement attracts new customers and maintains their interest over time. This involves leveraging marketing and advertising efforts, loyalty programs and data-driven insights to understand and respond to customer preferences. It also involves new channels such as social commerce.

Purchase and transactions payments encompasses the journey from customer selection to payment completion, with distinct variations between in-store and e-commerce. In in-store shopping, this value stream involves product selection, assistance from sales staff and checkout through physical point-of-sale systems. In e-commerce, the process includes browsing and product selection on digital platforms, cart management and seamless payment integration. Key elements like secure payment gateways, personalized recommendations and convenient delivery options drive customer satisfaction.

Presence on shelf is crucial to ensuring the seamless flow of goods from suppliers to customers. Sustainable sourcing practices help ensure that products are ethically and environmentally friendly.

Customer fulfillment means processing, packaging and shipping orders accurately and efficiently to meet customer expectations for delivery, while also accommodating diverse fulfillment options such as ship-to-home, buy online, pickup in-store and curbside pickup. These models demand seamless coordination across inventory systems, real-time order tracking and efficient logistics. Additionally, retailers must provide streamlined processes for returns and exchanges across all fulfillment channels, ensuring a cohesive and frictionless experience regardless of where or how the purchase was made.

Customer loyalty focuses on fostering repeat purchases and long-term customer engagement across in-store and e-commerce channels. In-store retail involves loyalty programs linked to physical cards or apps, personalized promotions at checkout, and tailored in-store experiences based on customer preferences and purchase history. In e-commerce, the process relies on digital loyalty platforms, where AI analyzes customer behavior to offer customized discounts, rewards and recommendations. Seamless omnichannel integration ensures that loyalty benefits, such as points or exclusive offers, are accessible whether customers shop online or in-store.

Customer support and experience creates seamless, real-time assistance across online, in-store and hybrid channels. AI-driven chatbots and virtual assistants provide instant online support, while call centers leverage AI to route inquiries and assist agents with real-time insights for faster resolutions. In the store, staff equipped with mobile devices deliver personalized service, such as locating products, checking loyalty program balances or managing returns. Omnichannel integration ensures smooth transitions between touchpoints, while predictive analytics enable proactive support, such as anticipating delays or recurring issues.

Customer returns represent a critical e-commerce value stream, encompassing processes from return initiation to resolution, and AI significantly enhances both efficiency and customer experience. AI-driven tools streamline return initiation with automated chatbots, predictive analytics minimize return rates by identifying patterns and automated inspection systems accelerate item processing. Reverse logistics are optimized through AI, reducing costs and processing times, while tailored product recommendations improve customer satisfaction. Additionally, AI detects fraud, enhances real-time feedback for product improvements, and transforms returns from a cost center into an opportunity to build loyalty and drive operational excellence.

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Barriers to realizing value

Lack of trust

As AI becomes integral to processes, retailers face increasing pressure to maintain transparency and trust, both internally and externally. Scaling AI without robust frameworks for accountability and explainability can lead to mistrust among employees, customers and regulators.

Managing strategy implementation

Scaling and embedding AI across the organization requires a profound transformation of structures and leadership. Most retailers are historically organized around products and services, with each function operating in silos. This makes the business case and the measurement of impact difficult to accurately quantify, impacting credibility and trust.

Moving to value streams disrupts these legacy structures, requiring processes that cut across departments and focus on end-to-end customer journeys. Change management becomes a critical task, as retailers must not only roll out new technologies but also foster acceptance of new workflows and cultural norms.

AI governance program layers

AI governance program layers

Organizational strategy — Reimagine your existing governance model, including your risk assessment process, to uncover the risks of AI and determine the operating model that will best fit within your organization.

Defining AI principles — Establish your principles for AI that will guide your process in building the governance model and consider an enterprise-wide AI mission statement.

Policies and standards — Align your AI deployments against appropriate standards and regulatory guidelines and develop policies, procedures and standards that will act as operating manuals for how teams should implement AI governance throughout the organization.

AI risk assessments — Perform AI risk assessments after solution ideation to determine use cases, stakeholders, harms and mitigations to ensure alignment with organizational strategy, policies and standards before development.

Design, implementation and control — Apply the developed policies and standards across the lines of business and on model deployment levels, following the structure that ensures the technology's responsible and effective utilization.

Metrics, monitoring and reporting — Define and implement methods to demonstrate compliance, and measure the performance of the AI program and individual models or deployments, leveraging specific metrics and consistent monitoring to assess operational effectiveness and align the usage of AI with strategic objectives.

Training — Provide ongoing training to ensure employees have a solid understanding of the AI tools at their disposal, fostering competency and confidence in the use of AI systems, and promoting a work culture that is safely using and benefiting from AI technologies.

Maintenance and evolution — Track and manage changes in the industry, regulatory environment and within the organization itself to ensure the AI governance program remains relevant, effective and compliant over time.

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Poorly managed transitions risk low adoption of AI tools, employee dissatisfaction and stalled transformation efforts.

Retailers need to think through how they implement an enterprise-wide AI governance framework to ensure a consistent, ethical and responsible approach to the execution of their AI strategy.

Leadership

Leaders play a pivotal role in this transition. Leaders need to rise above the day to day and think through what an AI future means for their enterprise.

Scaling AI demands leaders who can break down silos, align cross-functional teams, and foster a culture of experimentation and collaboration. However, traditional leadership styles in retailing, often hierarchical and risk-averse, are not always equipped for these demands. Leaders must champion value streams and empower teams to innovate, even when this disrupts established practices. Without such transformational leadership, efforts to scale AI may falter.

Workforce

AI is empowering retail employees by automating routine tasks and providing real-time insights, enabling them to focus on more strategic customer-facing activities. However, many retailers lack the in-house expertise to meet AI's demands. This talent gap slows the pace of transformation, as retailers struggle to upskill employees or hire specialized professionals. But upskilling and talent acquisition are only part of the battle. This shift often encounters resistance from teams and leaders aligned to specific products, slowing the adoption of value stream approaches. For instance, aligning operations and customer service into a single value stream can create tensions as functions adjust to new ways of working.

The transformation also has significant implications for employees and organizational structures as roles evolve to require employees to shift to higher-value activities. This creates uncertainty among staff, who may fear losing relevance: A 2024 KPMG global customer experience excellence study found that younger employees in particular are worried that entry level jobs will no longer exist because of AI.[3] Early wins are needed to generate momentum.

> "I think the biggest challenge is people's adoption and having a common understanding of the tech. I think that's the biggest one, readiness. Then, the change management piece is always a journey."

Head of AI, Canadian subsidiary of an international retailer (Grocery and general merchandise) — Canada

[3] KPMG International, "Beyond the noise: Orchestrating AI-driven customer excellence", October 2024

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Case study

Luxury retailer

Revolutionizing customer experience with AI-driven value streams

Reengineering

A global leader in the fashion industry has transformed its customer experience through value-stream-focused operations. Recognizing that traditional retail models were no longer sufficient to meet modern customer demands, they invested in AI to reengineer marketing, fulfillment and returns.

AI technologies

To further enhance customer engagement, the retailer implemented an AI-driven personalization engine within its marketing value stream. Customers receive tailored recommendations, exclusive offers and product suggestions based on their preferences, past purchases and real-time browsing behavior. This has resulted in a 30 percent increase in conversion rates and higher customer loyalty, as shoppers feel valued and understood.

Value streams

One of the company's most impactful changes came from leveraging AI to optimize its customer fulfillment value stream. By integrating AI-powered demand forecasting, the retailer has reduced stock-outs and overstocking across its 500+ global stores. AI-driven algorithms analyze customer browsing behavior, historical sales and local trends to predict demand accurately, ensuring that the right products are available in the right locations.

Significant ROI

This capability has not only reduced fulfillment costs but also improved customer satisfaction by 25 percent, as customers now find their preferred items more consistently.

The retailer has also transformed its returns value stream by deploying AI for automated return processing and fraud detection. Customers benefit from instant return approvals and faster refunds, while the company reduces costs associated with manual processing and fraudulent claims.

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The third phase: Evolve

Evolving your retail ecosystem

The Evolve phase transforms enterprises to adapt to market disruptions, forming new business models and ecosystems to solve larger, industry-wide problems. Companies establish and orchestrate ecosystems with customers, suppliers and governments, orchestrated by AI to deliver seamless value.

> As costs come down, existing markets will grow and new ones will emerge. AI will open up new things that have not yet been done before. Focusing solely on cost-cutting is intellectually lazy — it's easier but less exciting. The real value lies in exploring new possibilities, which offer greater competitive advantages."

Erik Brynjolfsson — Professor and Senior Fellow at the Stanford Institute for Human-Centered AI (HAI), Director of the Stanford Digital Economy Lab

AI integrates with frontier technologies like quantum computing, blockchain and advanced visualization, driving breakthroughs in innovation in products and services and involving close collaboration with customers, key alliances and partners. This phase emphasizes uplifting human potential, improving experiences, and providing robust training and support to help the workforce transition into a creative, imaginative future of value creation and collaboration.

Ethics, safety and trust are paramount, with real-time monitoring and security updates helping ensure platform integrity. In the third phase, organizations use predictive insights to continuously optimize for better, more sustainable outcomes. AI agents, no longer inhibited by silos and organized along value streams, can enable embedded intelligence in core processes, improving customer experiences and product value.

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Third phase use cases

Market leadership and innovation

A fully AI-enabled phase three retailer will be seamlessly integrated into the digital ecosystems that surround customers' lives, delivering highly personalized, dynamic and connected experiences across every touchpoint. AI will analyze vast streams of customer data, including purchasing history, lifestyle preferences and even contextual factors like weather or location, to provide instant, contextually relevant interactions.

Stores will transform into experience hubs, blending physical and digital retail through augmented reality (AR), virtual reality (VR) and autonomous service technologies that create a seamless, omnichannel journey. Customers will no longer need to choose between online and offline shopping — they will experience a unified retail ecosystem designed around their unique preferences and lifestyles. Customers interact with a fully integrated retail environment where digital and physical touchpoints complement one another, offering convenience, personalization and efficiency at every step of the journey.

New use cases

The phase three retailer redefines agility by integrating AI and robotics into product development and manufacturing. Products are designed in hours rather than months, responding directly to customer demand. AI systems analyze global trends, customer feedback and real-time purchase data to create designs tailored to market needs.

The supply chain is a self-optimizing, automated network powered by AI and robotics. Autonomous vehicles, drones and AI algorithms ensure just-in-time inventory management, eco-efficient transportation and flawless delivery experiences.

Customer interaction is entirely immersive and frictionless, combining AR/VR, AI assistants and voice interfaces to create a "phygital" experience that seamlessly blends physical and digital environments. AI companions accompany customers through their shopping journey, providing real-time advice and ensuring satisfaction.

The retailer operates with a circular economy model, ensuring that every product can be recycled, refurbished or repurposed. AI tracks the lifecycle of products and proactively offers trade-ins or upgrades, contributing to a zero-waste ecosystem.

Using AI simulation platforms, the company continuously tests and refines customer experiences, from product displays to payment systems, ensuring they stay ahead of market.

> We're using AI in areas of scam and fraud reporting. People send in images which are crafted or photoshopped to claim damages on the things that we ship out. We use AI to go and then identify to some level of affinity whether that image was doctored. We also go one step further, and we feed our images that we have collected over time and train the models to tell us what kind of an extent of damage it is and what is the discount percentage that we need to provide."

Director, Large global e-commerce retailer (Home goods and furniture) — US

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Key considerations

The research reveals that the organizations that are realizing the most value from their AI investments have prioritized four strategic actions:

1 Design an AI strategy that declares a clear statement of intent and aligns with core competencies and drives accountability

Retail leaders need a vision that integrates core strengths — such as customer engagement, omnichannel experiences and supply chain optimization — with AI capabilities. Success hinges on aligning AI strategies with customer-centric goals and innovation priorities. Leadership accountability is critical to ensure that the vision translates into measurable impact. Leaders should actively engage with ecosystem players, fostering collaboration to strengthen AI strategies. By uniting teams across technology, product and data science, and focusing on market leadership and customer experience innovation, leaders can drive alignment and ensure measurable impact from AI initiatives.

Key actions

- **Define a unified AI vision and strategy**

  Leaders must articulate a clear, organization-wide vision for AI that aligns with the retailer's core competencies — such as product innovation, customer success and ecosystem partnerships. This vision should be specific, actionable and tied to measurable outcomes, helping ensure that all teams understand how AI initiatives contribute to broader business goals.

- **Establish cross-functional collaboration**

  Break down silos between sales, marketing, merchandising, logistics and customer service teams to align AI with innovation and operational goals, and baseline infrastructure and operating model maturity, to assess readiness for larger operating model transformation. Retailers should create cross-functional teams focused on understanding where the retailer can productize services, using AI to create new business model opportunities and fuel growth.

- **Implement measurable objectives and key results (OKRs)**

  Retailers should adopt robust performance measurement frameworks to track AI's impact on outcomes such as customer retention, inventory turnover or supply chain efficiency, ensuring AI efforts align with strategic goals. These metrics should map to strategic business outcomes, such as revenue growth, customer satisfaction or market share. Regularly evaluating progress against these metrics ensures that AI initiatives remain aligned with the organization's strategic priorities and provides a basis for iterative improvement.

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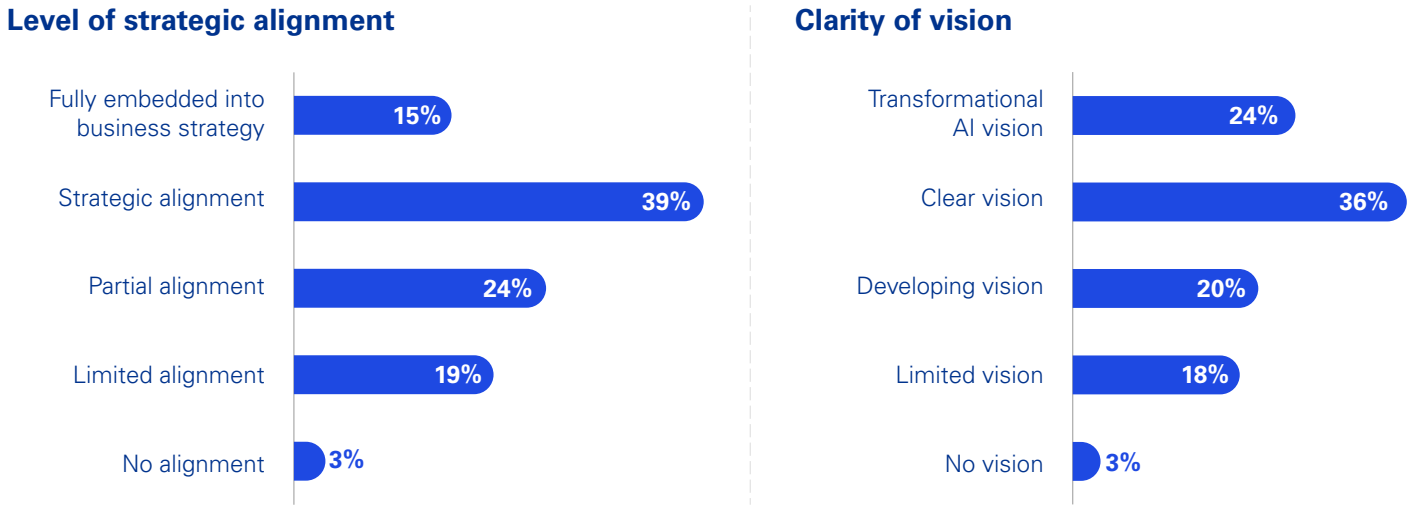
> The biggest challenge is making people understand what AI can do and making them comfortable to use it. That's still quite an ongoing process and it's a huge change management.

Chief Financial Officer, Leading global retailer (Luxury goods) — Japan

Figure 6: Only half of organizations are strategically aligned with a clear vision on how they will implement AI



To what extent (if at all) have leaders within your organization established strategic alignment on the adoption and implementation of AI?
To what extent (if at all) does your organization's leadership have a clear vision of the way AI can be used to its benefit to help the organization transform within the next 5 years?

Source: Intelligent retail: A blueprint for creating value through AI-driven transformation, KPMG International, 2025

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2 Build trust and credibility into the transformation roadmap

As retailers advance across the three phases of AI adoption, the potential for risk and reputational damage grows exponentially. Governance, ethics and accurate data are critical to maintaining stakeholder trust and unlocking AI's transformative potential.

> AI applications can be vulnerable to cyberattacks. Hackers can manipulate AI systems for malicious purposes.

Chief Technology Officer, Large retailer in Europe (Jewelery) — France

Key actions

- **Establish robust AI governance frameworks**

  Retailers should implement comprehensive AI governance structures that set clear standards for accountability, transparency and compliance. This includes defining roles and responsibilities across teams, establishing protocols for monitoring AI performance, and creating mechanisms to proactively address risks such as algorithmic accountability and ethical considerations. Leaders and employees need to trust the AI tools they are using if they are to advocate their use to others.

- **Embed ethical and bias-detection mechanisms**

  Ensuring fairness and mitigating bias in AI systems is essential. Retailers should develop and deploy tools that continuously audit AI models for unintended biases, especially in sensitive applications like credit decisioning or fraud detection. This requires diverse and representative training datasets, regular model testing and clear guidelines for acceptable model outcomes. Collaborating with independent auditors or ethics boards can provide additional oversight and credibility.

- **Prioritize privacy by design**

  As retailers handle vast amounts of customer data, integrating privacy considerations into every stage of AI development is crucial. Adopting a "privacy by design" approach means implementing encryption, anonymization and secure data-sharing practices as standard. This helps ensure compliance with data protection laws and builds trust with customers and stakeholders.

- **Invest in security and resilience**

  AI systems are increasingly attractive targets for cyberattacks, including model poisoning and adversarial attacks. Retailers must focus on eliminating the weakest links in the infrastructure, investing in advanced threat detection measures to protect AI systems and data. This includes implementing real-time monitoring for anomalies, regularly updating defenses and training teams to respond to emerging threats. Building resilience into AI systems helps ensure they can continue to function reliably, even in the face of disruptions or breaches.

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3 Manage the tech and data for maximum return

Retailers should balance the need for experimentation with the pursuit of scalable returns. As the AI landscape evolves, retailers should make "no-regret" investments looking for early wins that build momentum and provide a solid foundation for future innovation — regardless of how the technology matures.

> The unification of customer data is one of the key challenges. For retailers like us, data sources are diverse, and the channels for obtaining data are numerous, including online shopping platforms, physical store POS systems, social media, mobile applications, and more. These data sources have different formats and structures, making integration extremely complex.

Director, Large retailer (Grocery) — China

Key actions

- ### Invest in scalable and flexible infrastructure

  Retailers should build a robust, cloud-native infrastructure capable of supporting the dynamic needs of AI technologies. This includes adopting platforms that enable machine learning operations for efficient model deployment and lifecycle management. By focusing on scalable solutions, retailers can help ensure they have the flexibility to expand AI initiatives as needs grow, avoiding the pitfalls of rigid, short-term fixes.

- ### Establish comprehensive data management practices

  High-quality, unified data is the backbone of effective AI. Retailers should prioritize investments in advanced data platforms that consolidate siloed datasets into a single source of truth, enabling seamless data access and governance. Implementing tools for data quality, lineage and security ensures AI models are built on reliable foundations and can adapt as regulatory requirements or business needs evolve. Retailers must clean, organize and validate data to keep it free from inconsistencies, redundancies and biases that could undermine AI performance.

  Observability tools can monitor data health continuously, addressing potential issues before they impact AI outcomes.

- ### Focus on modular and interoperable solutions

  To help future-proof their technology stack, retailers should invest in modular AI systems that can integrate with existing tools and accommodate emerging technologies. Open APIs, interoperable software and vendor-agnostic solutions allow retailers to experiment with new innovations without locking themselves into specific ecosystems. This approach helps ensure flexibility in responding to technological advancements.

- ### Create a balanced investment portfolio

  Retailers should adopt a dual strategy of no-regret foundational investments — such as infrastructure, data management and governance frameworks — paired with controlled experimentation in cutting-edge AI technologies like generative AI or autonomous systems. This balance helps ensure the organization can drive immediate value while remaining agile enough to adopt transformative innovations as they mature.

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4 Build a culture that uses AI but empowers people

Human expertise remains indispensable alongside AI-driven automation. Attracting top talent in AI and machine learning is one of the most pressing challenges for the retailing sector, given the increasing global demand for these specialists. To meet this challenge, companies should not only recruit the best but also focus on upskilling and reskilling their existing workforce. Investing in robust learning and development programs helps ensure employees stay ahead of the curve as technology evolves. Such efforts are critical to building internal expertise and fostering a workforce capable of adapting to new AI capabilities and opportunities.

> You need to upskill these employees, which you are now trying to relocate from one department to another department. [Although] a huge investment to train them [is necessary], it also needs to come from the employee. They should be ready to embrace this knowledge and then try to upskill themselves.”

Director, Large global retailer (Clothing) — Germany

Key actions

- **Foster transformational leadership**

  Leadership needs to champion AI adoption by fostering a culture of trust, transparency and collaboration. Leaders should actively communicate the strategic vision for AI, emphasizing its role as an enabler rather than a disruptor. Transformational leadership practices, such as empowering teams to experiment with AI, recognizing successes and addressing concerns openly, help build confidence and alignment across the organization. Leaders also need to model adaptability, demonstrating a willingness to embrace change and invest in their own AI knowledge to guide the organization effectively.

- **Build an AI-literate workforce**

  Retailers should create tailored learning programs that provide employees with a foundational understanding of AI, its applications and its implications for their roles. Upskilling should go beyond technical teams; employees across all functions, including operations, customer service and risk management, need to understand how AI impacts their work and enhances their decision-making capabilities. For technical roles, retailers should provide specialized training in AI development, machine learning and data science to close the talent gap.

- **Address cultural resistance through change management**

  Overcoming cultural resistance requires a structured change management approach that includes clear communication, employee engagement and support systems. Retailers should proactively address fears around job displacement by emphasizing how AI can augment roles rather than replace them. Engaging employees in co-creating AI solutions fosters buy-in and helps ensure AI tools are designed with their practical needs in mind. Establishing forums for feedback, collaboration and success stories can help dispel misconceptions and create enthusiasm for AI-driven transformation.

- **Redefine roles and career pathways**

  AI will fundamentally change the nature of work in retailing, requiring a redefinition of roles and career pathways. Retailers should identify areas where AI can automate routine tasks and shift employees toward higher-value activities, such as customer engagement, strategic analysis and innovation. Clearly mapping out these new career opportunities and pathways helps employees see AI as a means of growth rather than a threat. Additionally, retailers should establish new roles, such as AI ethics officers or value-stream leaders, to align human expertise with AI capabilities.

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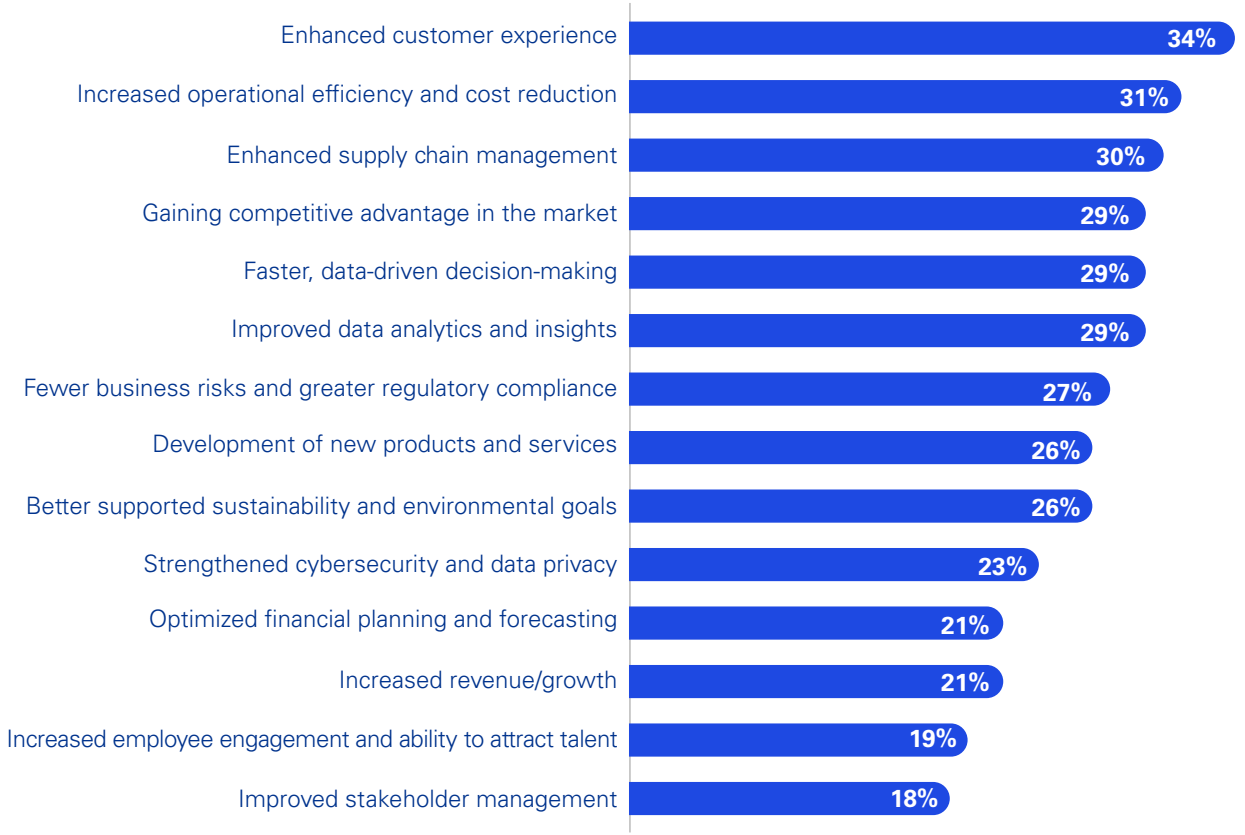
Preparing for an AI future

It has become a cliché to warn that retailers must move quickly on AI or risk being left behind, but clichés often contain a grain of truth. This hesitancy creates a significant barrier to progress. Retailing executives face a dual imperative: They must simultaneously articulate the transformative potential of AI while addressing its associated risks in a way that inspires confidence across the organization.

Figure 7: A variety of benefits are selected in the top 5, showing that organizations are yet to distinguish where AI can be best used

Percentage who say their organization has achieved the following benefits through using AI



What benefits has your organization had from using AI in the business?

Source: Intelligent retail: A blueprint for creating value through AI-driven transformation, KPMG International, 2025

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The future is already here — it's just not evenly distributed. This famous insight from William Gibson captures the reality facing the retail sector today as advanced AI capabilities emerge in specific, transformative applications across the industry. Retailers are at the forefront of exploring technologies that promise to redefine the way they operate and engage with customers, but achieving widespread implementation remains a challenge.

Emerging AI advancements are unlocking unprecedented potential. Retrieval-augmented generation (RAG) combines large language models (LLMs) with real-time data retrieval, enabling retailers to analyze vast datasets and provide contextually relevant, up-to-the-minute insights. This could revolutionize everything from personalized product recommendations to demand forecasting.

Emotion engines are adding a new dimension to retail experiences by detecting and responding to human emotions in real time, enabling more empathetic customer interactions.

Autonomous agents offer retailers the ability to automate complex tasks like dynamic inventory management and autonomous customer support, driving efficiency and responsiveness at scale.

Retailers are also exploring synergistic networks of specialized LLMs, where models work together to optimize workflows and deliver deeper insights. For example, one LLM might retrieve data another interprets it contextually, and yet another applies domain-specific expertise, such as fashion trends or supply chain optimization.

Meanwhile, the field of quantum mechanics is pushing the boundaries of retail technology. Quantum sensing is already delivering unprecedented precision in measurement systems, which could optimize supply chain logistics and store environments. While quantum computing is still developing, its eventual application promises exponential computational capabilities, transforming areas like pricing optimization, cryptographic security and large-scale consumer data analysis.

For retailers, the implications of these technologies are profound. To harness their full potential, organizations must reimagine their strategies, integrating AI not as a peripheral tool but as a foundational enabler of growth and innovation. Achieving this vision demands breaking free from traditional operating models, embracing value-stream-based structures, and fostering a culture of agility and experimentation.

The research highlights that while pockets of innovation are evident, the retail sector as a whole has significant ground to cover. Courage, foresight and flawless execution will distinguish the leaders from those left behind. The retailers that dismantle silos, embed advanced AI deeply into their operations and commit to long-term transformation will be the ones to shape the next generation of retail — redefining not just commerce, but how brands connect with and enrich their customers' lives.

AI is not a passing trend; it is an accelerating force that continues to evolve and disrupt.

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Methodology

To gain a broad understanding of how leaders are navigating the opportunities and challenges of implementing AI, KPMG International conducted a robust research program involving multiple methodologies.

This included in-depth interviews with eight AI experts spanning technology, government regulation and industry, as well as discussions with sector-specific KPMG specialists. Qualitative research was conducted to uncover nuanced, industry-specific challenges and opportunities, including insights from several industry experts, including Erik Brynjolfsson of Stanford University, a renowned authority on AI and digital transformation.

The research was further strengthened by a quantitative survey of 1,390 decision-makers across key global markets, including 163 respondents from the retail sector. These leaders shared their experiences and perspectives on overcoming barriers to AI adoption, from dismantling legacy systems to addressing organizational inertia. In parallel, an 18-month research project evaluated the realistic value at stake for fully deploying and adopting generative AI. Together, these inputs offer a clear roadmap for organizations to unlock AI's potential and drive meaningful, enterprise-wide change.

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1,390

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KPMG: Guiding your AI transformation with experience

With over 150 years of experience in data, industry insights, technology and regulatory expertise, KPMG is uniquely positioned to help you uncover AI opportunities, work through critical business challenges and unlock new revenue streams. From strategy to implementation, we guide you in taking small, impactful steps to tackle even the most complex problems — all underpinned by trust.

We've invested in an AI-enabled platform for organizational change. It brings together the best of our thinking, frameworks, strategies and tools. So, you can change smarter and move faster — eliminating inefficiencies and building trust and confidence at every step.

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Wherever you are on your AI journey, KPMG can help:

Develop a transformational AI strategy

Define your AI goals, identify opportunities and risks, and create a tailored strategy and execution plan. Build a business case with clear metrics to secure investments and ensure measurable success by scaling AI for enterprise-wide impact and building lasting capabilities.

Ensure AI trust and compliance

Scaling AI introduces complexities and risks. KPMG Trusted AI teams can help ensure your AI solutions are ethical, secure and compliant. Our Trusted AI Framework, built on 10 ethical pillars, empowers organizations to boldly deploy AI responsibly, transparently and with confidence.

Empower your workforce with AI

KPMG AI-enabled Workforce solutions deliver personalized adoption and upskilling experiences, helping your team embrace generative AI and infuse it into everyday work.

Build a sustainable AI technology infrastructure

Leverage KPMG professionals' experience to integrate AI frameworks, platforms and accelerators, helping you ensure your technology infrastructure is ready to scale AI initiatives.

We help clients harness the power and potential of AI. From strategy to implementation. Small steps towards solving seemingly impenetrable problems. Underpinned by trust.

You can discover endless opportunities with AI. You can with KPMG.

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Adrian is a member of KPMG's global consulting leadership team and Global AI Council. He is dedicated to helping to deliver technology-enabled innovation and new ventures that improve the lives of millions of customers, consumers, citizens and patients.

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