

Retail AI Trends 2025

A Survey Report

December 2025

Introduction and Key Findings

Artificial intelligence is rapidly transforming the global retail sector. It is enabling the adoption of a wide variety of new technological capabilities, both in-store and online, that provide new efficiencies and growth opportunities. AI is compelling retailers to find new ways to market their products and build relationships with consumers. Its impact is being felt in nearly every aspect of retail, from product design to supply chain to marketing to customer service. AI also introduces new business risks for retailers, motivating companies to update their corporate strategies and current governance, risk management and security frameworks.¹

The current business-sector and societal frenzy around AI can make it difficult to understand the ground truth of what is happening today in the retail sector. Where are companies making new investments in AI? What are business leaders' priorities with respect to AI, and what are their greatest concerns?

To answer these questions, the National Retail Federation's Center for Digital Risk & Innovation conducted a survey of 56 AI leaders at U.S.-based retailers in the summer of 2025, asking a series of questions about their companies' AI strategies, governance structures, priority use cases and key concerns. Key findings include:

- **Retailers continue to evolve their governance policies as the AI landscape changes:** While most (86%) of those surveyed have existing AI governance programs, the vast majority (93%) of retail respondents plan to develop or continue developing their AI governance policies within the coming 12 months. These efforts are typically led or co-led by retailers' technology and legal teams.
- **More than half report their CEOs are engaged in either oversight or development of AI governance policies:** Among those with existing AI governance policies, more than two-thirds (68%) said their CEOs were involved in overseeing governance activities. For those developing or continuing to develop their policies, 56% say their CEOs are involved.
- **At the Board of Directors level, engagement with oversight or development of AI policies varies across organizations:** Over half (55%) of those with existing governance policies say their board of directors is involved in oversight. That goes down to 43% among those working on new or existing AI governance policies.

¹ Additional contextual information on AI in the retail sector is available in other NRF blog posts and articles. See for example "4 Principles for Retail's Use of AI," December 8, 2023, available at <https://nrf.com/blog/4-principles-retails-use-of-ai>, and "The Human Aspect of AI," January 21, 2025, available at <https://nrf.com/blog/the-human-aspect-of-ai>

- **Current levels of investment in AI vary significantly across retailers but it is poised for significant growth in the next three years:** The majority (77%) of retailers report that AI currently accounts for 5% or less of their technology budget but that level of investment is expected to increase in the next three years. Just 41% anticipate that AI will represent 5% or less of their budget in three years and 39% expect that it will account for 10% or more.
- **IT coding and app development, office productivity tools, and cybersecurity and fraud prevention are the areas retailers are currently most likely to be implementing AI tools:** Three-quarters (75%) of those surveyed have already implemented or are in the process of implementing AI tools for IT coding and app development. Another 73% have done so for office productivity tools and 66% for cybersecurity and fraud development. Looking to the future, 59% are either preparing to implement or are researching AI tools for supply chain and warehouse operations while another 45% are doing so for marketing advertising and promotion.
- **IT application coding and development and customer personalization are the areas retailers were most likely to have seen a positive ROI on AI investment:** 50% say they have seen a positive financial return on investment in IT coding and development, followed by customer personalization in marketing (48%) and advertising and promotion (41%).
- **Cost, model accuracy and gaps in AI expertise within the workforce are the top strategic concerns for retailers when it comes to AI:** The most prevalent strategic challenges identified by respondents were the cost of using AI tools and services (57%) and AI model accuracy and reliability (57%), followed by gaps in AI expertise within the company workforce (55%).
- **Retailers face a number of external risk factors, from potential legal action to regulation, that may impact their ability to use AI applications and services:** With respect to external risk factors, retailers expressed the greatest concern about consumer class actions (71%) or intellectual property lawsuits (71%) affecting their company's ability to deploy AI. Half (50%) expressed concern around federal legislation and another 50% around state legislation or regulation.

Detailed Survey Results

The survey results can be broken down into four key thematic areas: (1) AI governance, (2) AI spending, (3) AI investment priorities, and (4) strategic challenges and external risk concerns. Detailed survey findings in each area are found in the four sections below.

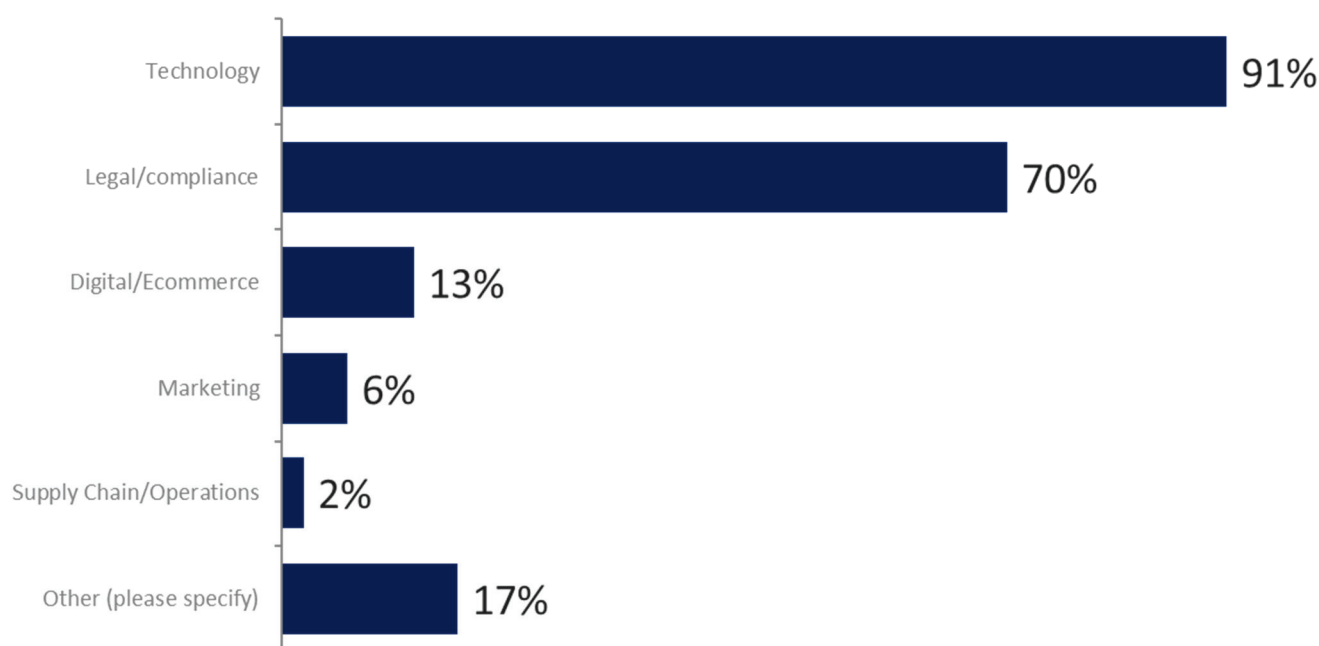
AI Governance

AI governance is a set of internal processes to manage the use of AI within a company and ensure that current and future AI-related risks are appropriately understood and mitigated by the company's workforce.² Most (86%) respondents said their company already has an internal AI governance policy or set of policies. Even more (93%) said that they plan to develop or continue to develop their AI governance policy or set of policies within the coming 12 months. Of the few companies that reported that they did not currently have an AI governance policy, all indicated plans to develop one.

Governance also refers to who makes decisions when it comes to AI deployment within a business. It involves determining who contributes to writing the policies governing how and where AI will be used, as well as who makes the financial decisions about investments. For those respondents who indicated that they have an existing AI policy, governance of technology is primarily developed and managed by technology functions (91%), although the vast majority (70%) also involve their legal and compliance teams. This is not unexpected given the dual technology and legal dimensions of AI governance. Other elements of the retail organization that had a lead role in some companies are digital/ecommerce, marketing and supply chain/operations.

² For a more detailed overview of AI governance as it applies to the retail sector, see the NRF Principles for the Use of Artificial Intelligence in the Retail Sector, December 2023. Available at <https://nrf.com/research/principles-use-artificial-intelligence-retail-sector>

Chart 1: Which functions have the lead (or co-lead) role in the development of AI governance policies?



Executive-level visibility of AI efforts is another important aspect of governance and oversight. Given the investment cost and potential risks involved with AI development and deployment, senior leadership needs to be aware of how risks are being controlled and how the use of AI may impact the business as a whole. Most survey respondents reported that their CEO and board of directors have some level of involvement in overseeing AI governance activities, though they are slightly less involved in developing new policies.

Among respondents who currently have AI governance policies, 68% said their CEOs have at least some level of involvement in the oversight of these policies. Slightly fewer (55%) reported their board of directors has some level of involvement in oversight. For those looking to develop new AI policies over the next year, there is less engagement from the CEO and board at this phase. Just over half (56%) reported their CEOs had at least some involvement in developing new AI governance policies, while just 43% said their board of directors was involved.

AI Spending

The majority (77%) of retailers report that AI currently accounts for 5% or less of their technology budget but that level of investment is expected to increase in the next three years.

Just 41% anticipate that AI will represent 5% or less of their budget in three years and 39% expect that it will account for 10% or more.

Chart 2: What percentage of your company's technology budget is being spent on AI applications and services in the current fiscal year?

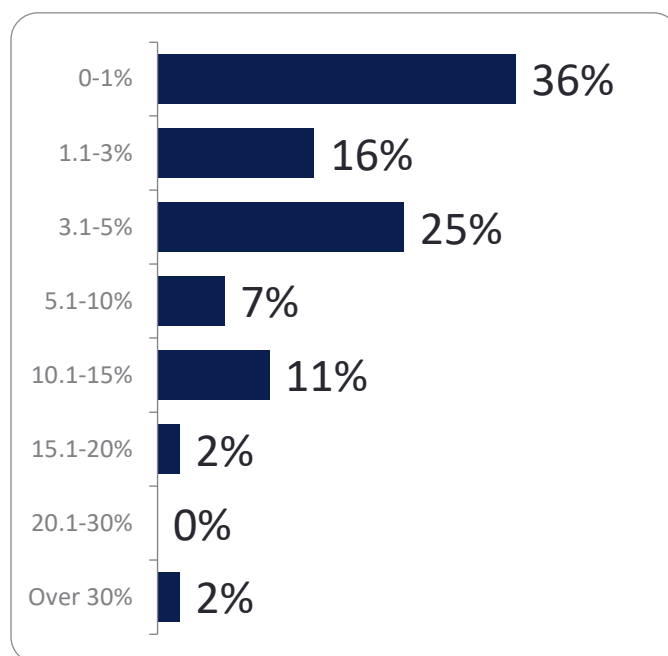
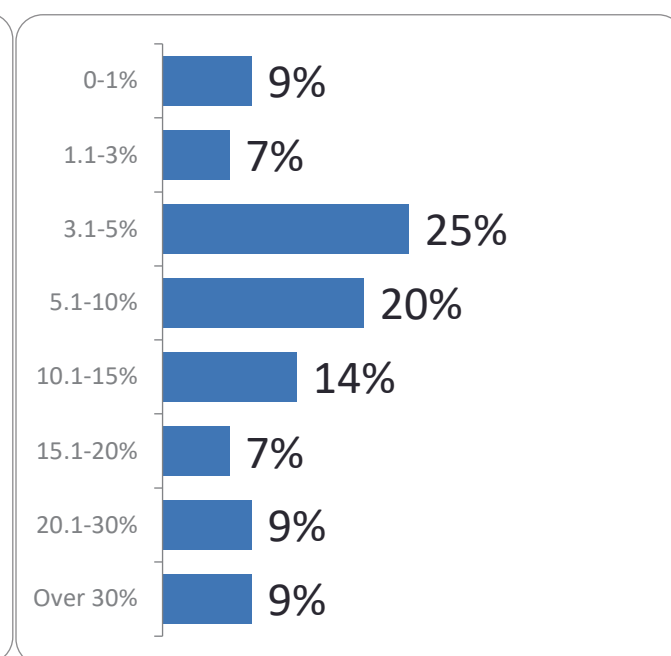


Chart 3: What percentage of your company's technology budget do you expect will be spent on AI applications and services three years from now?

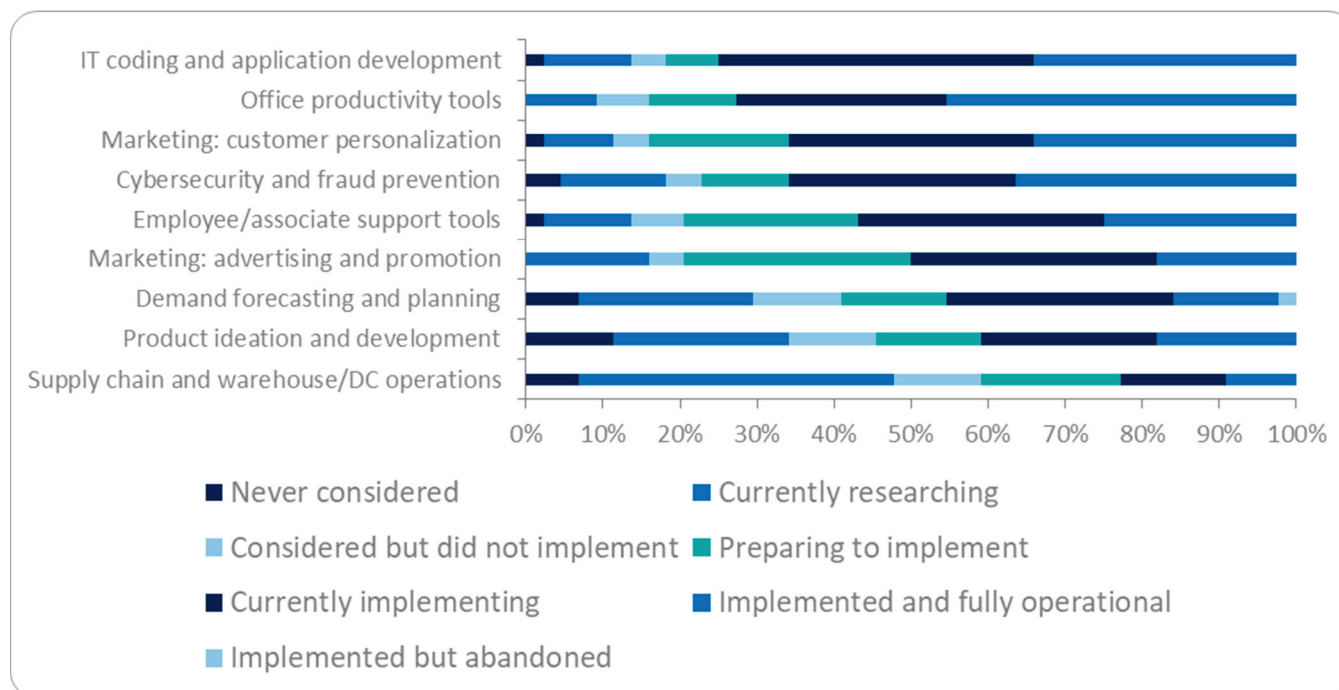


AI Investment Priorities

One of the challenges that retail leaders have faced over the last three years since the launch of ChatGPT 3.5 is finding where to prioritize their efforts. In any large or medium-sized retailer, there are countless potential AI use cases that can improve customer engagement, inform front-line workers, accelerate key work processes and ultimately deliver both cost savings and increased revenue. However, some key trends have started to emerge in terms of which business functions and processes are early adopters of AI.

Seventy-five percent of those surveyed report that they have already implemented or are currently implementing AI applications for IT coding and development. After coding, the next most cited uses of AI investment among retailers include office productivity (73%), customer personalization in marketing (66%), cybersecurity and fraud prevention (66%), and associate support tools (57%).

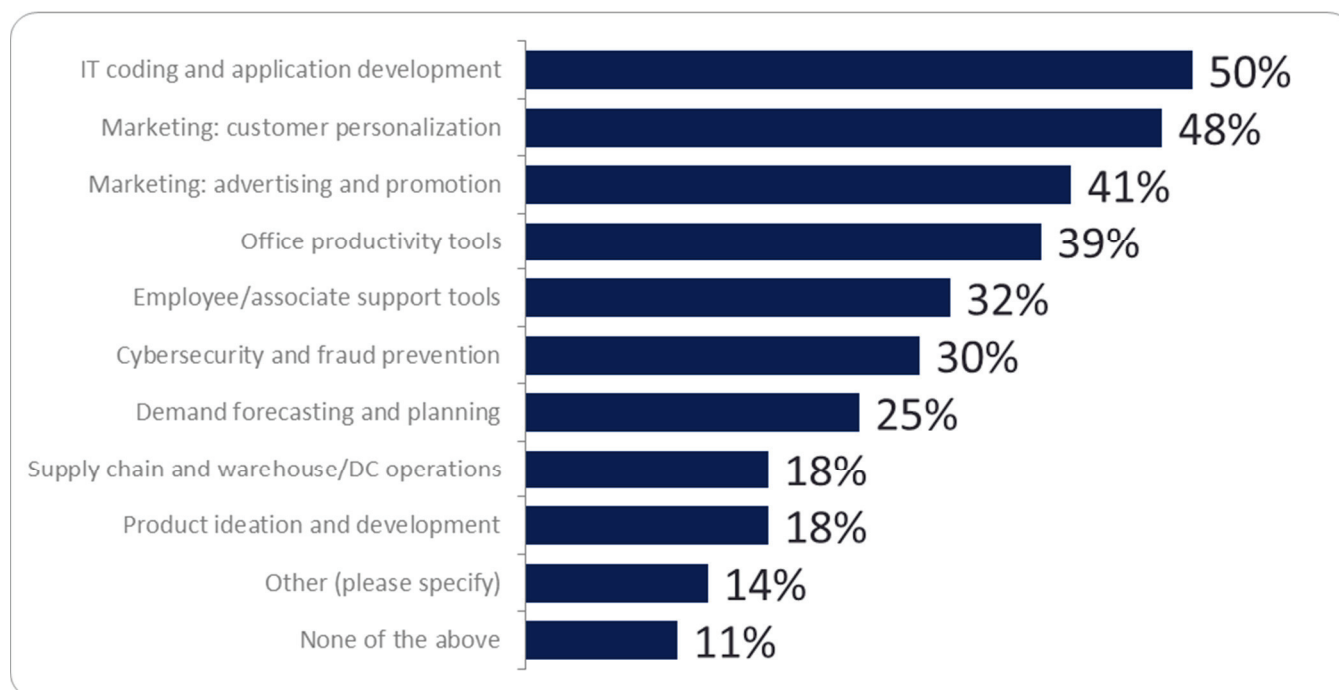
Chart 4: Where is your company in terms of making investments in AI applications in each of the following areas?



Looking forward, the areas retailers are most likely to be preparing to implement or researching AI tools are supply chain operations (59%) and marketing advertising and promotions (45%).

Given the variance in terms of where retailers are in their adoption of AI tools as well as in their overall levels of investment, many are still waiting to see a positive return on their AI investment. However, some trends are emerging. IT application coding and development — where AI implementation is highest — and customer personalization were the two areas where retailers were most likely to report a positive ROI.

Chart 5: In which of the areas above have you seen a positive return on investment from your spending on AI?



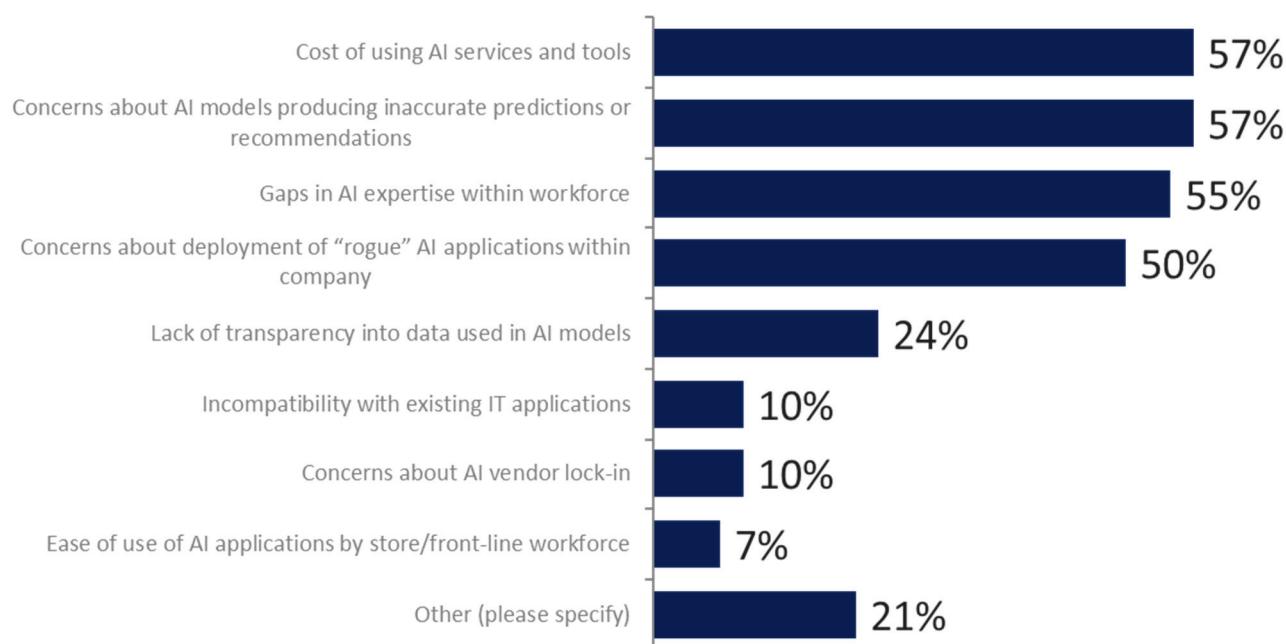
Strategic Challenges and External Risk Concerns

Retailers identified their top three strategic challenges with respect to their companies' use of AI applications and services. The four leading challenges were:

1. **The cost of using AI services and tools (57%):** Any retailer expanding its investments in AI is likely to face questions about potential cost increases. This can come in part from relationships with new AI companies, but in most instances it is due to cost increases from current vendors and partners that are integrating new AI tools and capabilities into their existing products and services. Retailers need to carefully manage these costs and also avoid AI vendor lock-in.
2. **Concerns about AI models producing inaccurate predictions or recommendations (57%):** When retailers are deploying customer-facing applications, they need to ensure that new applications deliver accurate and timely information to customers. This becomes a greater challenge in the context of AI, where foundational models may hallucinate (and thus provide inaccurate information) or be at risk of a jailbreak (producing deliberately false or harmful information), which could undermine the consumer's trust in affected retailers.
3. **Gaps in AI expertise within the workforce (55%):** The rapid growth in AI investment over the past three years has led to a race for AI talent, not only in the U.S. but globally. This makes it harder for any company to maintain their current internal AI experts, and it is not easy to recruit or upskill individuals into these open roles.

4. **Concerns about the deployment of “rogue” AI applications within the company (50%):** While the majority of a company’s investments in AI are funded by the technology team and subject to the company’s AI governance policies, there are real risks that “rogue” AI applications will be deployed by individuals on an ad hoc basis in companies, in many cases enabled by AI coding tools like Cursor AI. These rogue AI applications may affect the performance of other deployed technology applications and create unexpected legal, privacy or cybersecurity risks

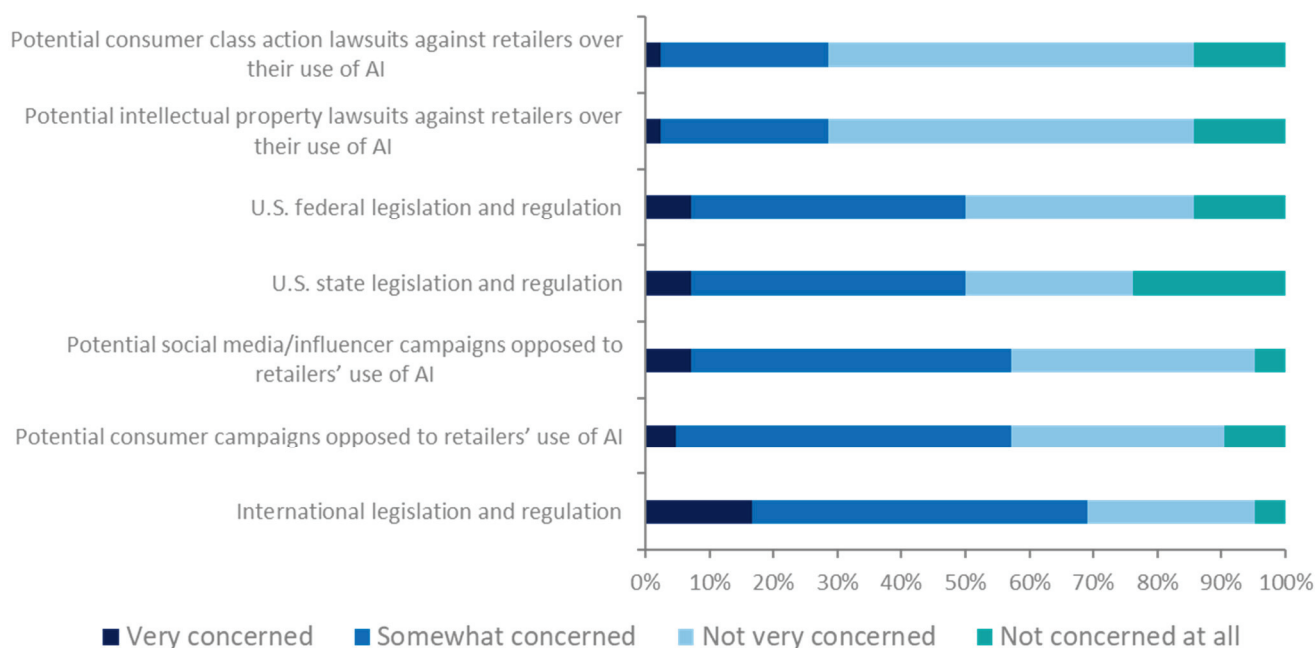
Chart 6: What are your top three strategic challenges with respect to your company’s use of AI applications and services?



Another complicating factor when it comes to implementing AI tools is the ongoing challenges with trying to procure AI tools and systems from third-party vendors. Only 9% of respondents were very satisfied with their AI vendors and partners, while 55% were somewhat satisfied with current vendor and partner offerings in the market relative to their current business needs, and around 36% said they were “not very satisfied.”

Additionally, there are a variety of potential concerns with respect to external factors — policy, legal and societal — that could have an indirect harmful impact on companies’ ability to deploy AI. Concerns about lawsuits (both class action and intellectual property) were the top concerns for retailers in terms of potential harmful AI impacts.

Chart 7: How concerned, if at all, are you about external activities that may affect your company's ability to use AI applications and services?



Key Takeaways and Next Steps

Overall, the findings of this report show an industry in transition, with leaders making significant investments in AI but also being cautious about what to prioritize and how to implement AI in ways that mitigate risks and improve companies' relationship with their customers and workforce. Given the rapid evolution of AI technologies today, we are likely to see significant changes with respect to investment priorities and key challenges in next year's iteration of this new annual report.

The findings from this report will also guide NRF's broader AI member and stakeholder engagement in 2026 and beyond. We will be releasing an updated version of NRF's Principles for the Use of Artificial Intelligence in the Retail Sector shortly, as well as a new report on Managing and Governing AI Complexity in Retail, based partially on the findings of two recent retailer workshops organized by NRF and PwC. We are planning to do additional research and benchmarking on agentic AI standards and the mitigation of adversarial AI risks in 2026.

NRF remains very active on AI policy issues at the federal and state level, working to see that the perspectives of the retail sector are addressed in relevant legislation and regulation, and

ultimately to ensure that retailers can invest in AI without facing burdensome or ill-matched regulatory barriers.

Methodology and Survey Demographics

NRF conducted this survey in the summer of 2025, fielding it to technology and business leaders at its retail member companies, including members of NRF's AI Working Group, CIO Council, Digital Council and Technology Leadership Council. NRF received 56 responses to the survey as a result of this outreach.

The vast majority of respondents (79%) work in technology roles at their companies, with the balance working in legal, compliance, digital and marketing roles. Seventy percent of respondents work for multichannel retailers that have over 50% of their sales from physical stores, another 16% work for multichannel retailers whose sales are not dominated by a single channel, 12% for retailers that derive 50% or more of their sales from online, and 2% for primarily catalog-based retailers. The majority of respondents (70%) represent retailers with revenues of over \$1 billion.

About the National Retail Federation

The National Retail Federation passionately advocates for the people, brands, policies and ideas that help retail succeed. From its headquarters in Washington, D.C., NRF empowers the industry that powers the economy. Retail is the nation's largest private-sector employer, contributing \$5.3 trillion to annual GDP and supporting more than one in four U.S. jobs — 55 million working Americans. For over a century, NRF has been a voice for every retailer and every retail job, educating, inspiring and communicating the powerful impact retail has on local communities and global economies.

About the NRF Center for Digital Risk & Innovation

The NRF Center for Digital Risk & Innovation is the National Retail Federation's hub for engagement on key technology issues that have significant policy and risk management implications for the global retail industry. The Center engages with retailers, industry partners and other stakeholders to develop guidelines and recommended best practices on technology issues and inform decision-making and risk management by retail business leaders.

To learn more about opportunities to engage with CDRI, please visit the Center's website at <https://www.nrf.com/cdri> or email the Center at cdri@nrf.com.