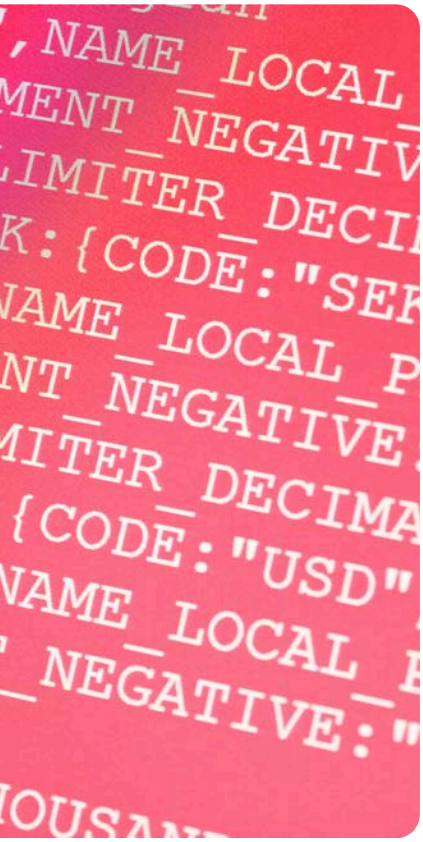
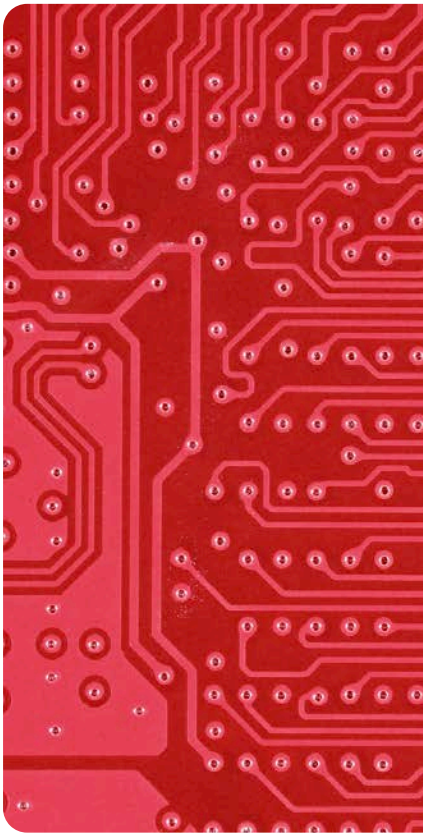


Lily ai™

2024 RETAIL AI INDEX

Discover the
Top 100 Trailblazers



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Lily ai

LETTER FROM THE CEO

The latest AI headlines would give anyone whiplash:

- Generative AI is Revolutionizing… The World
- Generative AI: The New Board Mandate
- Beyond the GenAI Hype: What's Real
- The AI Bubble: Will It Burst?

Generative AI is not a panacea. It's also not a disease. It's just a technology, and like any technology, its impact is correlated to its application and purpose. Applications tend to fall into one of two categories and rarely, but sometimes, a third:
Cost saving, revenue driving, and market creating.

Cost-saving initiatives drive efficiency, often through automation and optimization. They are a Local Maxima, a false peak of potential on the chart. Revenue-driving applications create new, better ways to do important things. They are a Global Maxima, the true peak of performance that can be achieved. Then, there are market-creating applications, like the Internet and smartphones, that are off the charts.

Some might remember that when I founded Lily AI almost a decade ago, it was just Lily. My Co-Founder, Sowmiya, and I started the company to solve a problem that we experienced as consumers. To solve the problem, we became an AI company. Yet it was never about the technology in and of itself; it was about the purpose and our shared vision.

With our inaugural Retail AI Index, we seek to celebrate the retailers and brands that invest in AI with a greater purpose: to delight their customers and create impact for their business and the world. If you ask me if the AI hype is real, if we're in a bubble, or if AI is revolutionizing the world, I will tell you it's not about the technology at all; it's about the applications.

EXECUTIVE SUMMARY

The Retail AI Index presents a comprehensive analysis of how artificial intelligence (AI) is *visibly* reshaping the retail industry. By measuring the public demonstration of AI-powered innovation across leading retailers in the apparel, footwear, beauty, and home segments, this inaugural index from Lily AI serves as a critical benchmark for understanding the integration and consumer-facing impact of AI in retail.

Overall, the Top 25 positions are dominated by a mix of well-known industry giants and globally beloved brands. Unsurprisingly, Amazon and Walmart lead the rankings, but brands like Wayfair, Macy's, and Gap are also making significant strides to compete with consumer favorites such as SHEIN and Abercrombie & Fitch.

Retailers of all vintages are weathering the market storms; whether they've navigated 165 years of change or burst onto the scene a decade ago, they are coupling their unique historical wisdom with today's technology enablers to adapt and prosper in this ever-evolving era of commerce.

Key Findings

Diverse AI Adoption: The Retail AI Index reveals significant variation in AI adoption among retailers. Top companies like Amazon and Walmart demonstrate extensive AI integration across e-commerce, customer service, and marketing, yet most retailers and brands are demonstrating a more gradual approach to AI implementation.

Strategic Investments: As one would expect, financial commitment to AI correlates strongly with higher AI adoption levels. The analysis shows that substantial investments in AI, as evidenced by mentions in financial documents and earnings calls and AI-related mergers and acquisitions, are pivotal for achieving advanced AI capabilities.

Innovation in Customer Interaction: Leading retailers and brands are leveraging a range of AI technologies, from the latest in generative AI to more established ones like computer vision, to enhance customer experiences, optimize marketing campaigns and strategies, and streamline operations.

Technology Insights

AI technologies within the context of machine learning (ML) exhibit diverse modalities, capabilities, efficiency levels, and stages of maturity. Prominent modalities, including classical (CML), computer vision (CV), natural language processing (NLP), and generative AI (Gen AI), each represent distinct and powerful tools in the modern retailer's toolkit.

Alone or combined, these AI technologies are powering and improving a range of customer-facing retail applications. These include personalized product recommendations and offers, dynamic content creation and optimization, customer support chatbots and virtual shopping assistants, intelligent product search, smart product filtering, and more.

The potential of AI expands even further when integrated with other technologies, such as augmented reality (AR). This combination enables retailers to create immersive shopping experiences and advanced shopping aids, including virtual try-ons and in-store navigation. For instance, Lowe's leverages AR enhanced by computer vision advancements for in-store navigation, enhancing the in-person shopping experience while providing AI-guided product recommendations.

EXECUTIVE SUMMARY, CONTINUED

Market Impact

The paper underscores a shift from viewing AI as a “shiny object” mandated by boards to a critical tool in retailers’ tech stacks. As with any transformative technology, AI is proving itself absolutely necessary for success moving forward, and the Top 100 retailers within the Index have experienced growth as a direct result of its impact.

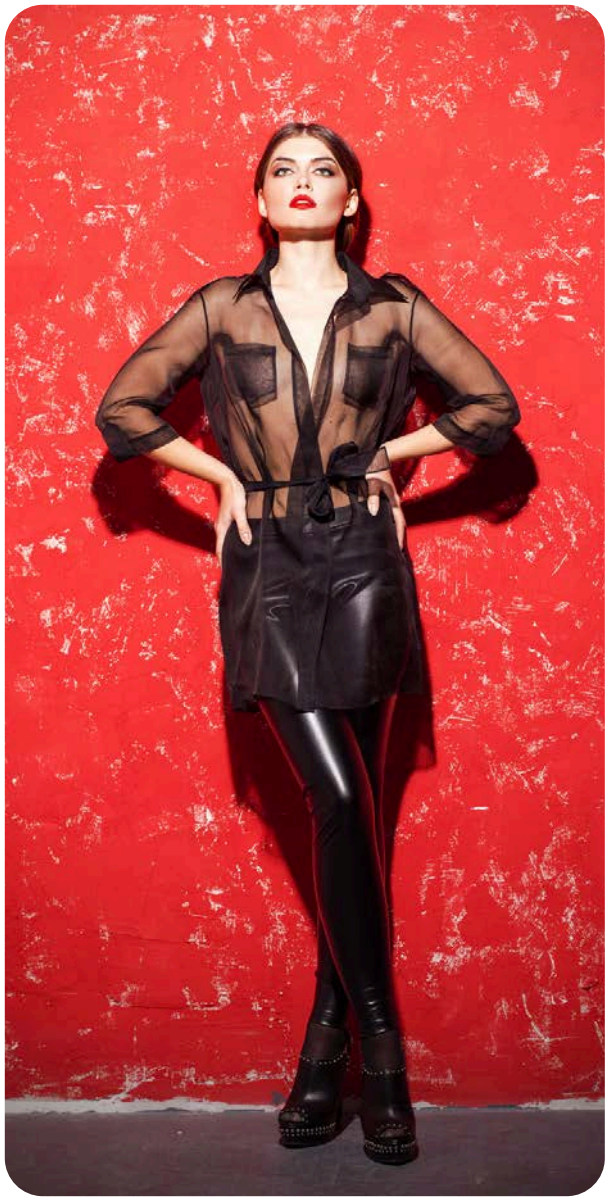
Increased investment in AI is linked not only to enhanced operational efficiency, but also to revenue acceleration, thanks to its innovations in product discovery and development.

Future Outlook

The integration of both mature and cutting-edge AI technologies is now standard in the retail industry and will continue to drive significant transformation.

As AI becomes more deeply embedded in retail operations, similar to the industry’s focus on environmental sustainability and supply chain initiatives, AI sustainability practices will also emerge and evolve. For example, while generative AI is proving to be a powerful evolution in AI technology, it is increasingly energy and compute-intensive. Retailers may find it more strategic to deploy generative AI selectively, using other more cost-effective and sustainable AI technologies for enhancing core business processes.

Retailers may increasingly turn to small vs large language models that are not only less expensive but also just as, if not more effective for specific retail use cases. The trend towards smaller, more focused models that train on a well-defined problem is likely to continue as retailers strive to balance cost, efficiency, and business impact.



Conclusion

The Retail AI Index sets a new standard for evaluating AI implementation across the retail sector, providing valuable insights that can help retailers stay competitive in a tech-savvy market. As AI continues to evolve, the index will be an essential tool for retailers aiming to navigate the complexities of ever-evolving AI technologies, enabling them to fully harness its potential to reshape the retail business landscape.

INTRODUCTION

Contextual Background on the Evolution of AI in Retail

As with all industries, the retail sector is undergoing a significant transformation driven by advancements in artificial intelligence. From early data analytics to the emergence of generative AI and its nascent impact, to the exploration and increasing incorporation of sophisticated AI-driven strategies, the evolution of AI in retail has enabled businesses to enhance customer experience, optimize supply chains, innovate product offerings, and accelerate their business, despite economic hurdles. The integration of AI technologies is becoming a critical component in maintaining competitive advantage, providing retailers with the tools to interpret complex consumer data and predict purchasing behaviors with increasing accuracy.

NVIDIA, a leading provider of foundational AI technology, conducted a survey among retailers that highlighted substantial financial benefits from AI adoption: 69% of respondents reported an increase in annual revenue directly tied to their use of AI, while 72% experienced a reduction in operating costs. Moreover, AI is projected to make a profound impact on the retail sector, with an estimated $9.2 trillion in overall economic impact by 2029. This includes $4.4 trillion in benefits such as enhanced sales, improved gross margins, and reduced SG&A costs.

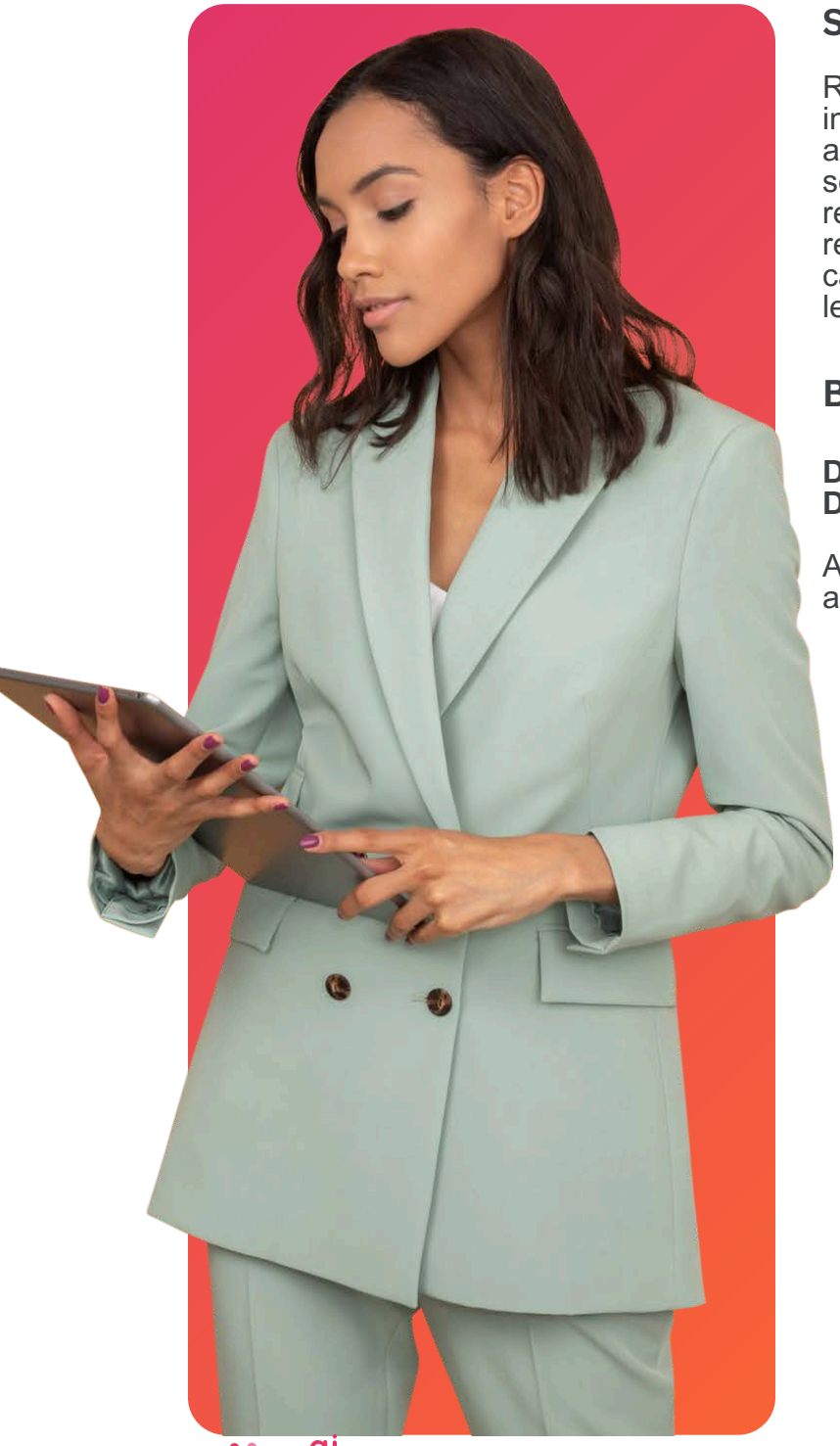
Objectives of The Retail AI Index

Lily AI's inaugural Retail AI Index aims to measure and illustrate the varying degrees of AI adoption and integration across leading retailers, focusing particularly on those within the apparel & footwear, beauty, and home segments. This Index aims to serve as a comprehensive benchmark, enabling retailers to assess their AI capabilities, understand the technologies their competitors are investing in, and see how AI is propelling the industry forward. By providing a detailed landscape of AI adoption in the retail sector, the Index encourages retailers to accelerate their AI initiatives and investments in meaningful, measurable ways that drive positive impact.

Overview of the Methodology Used to Assess AI Adoption Among Top Retailers

The methodology behind The Retail AI Index is designed to provide a comprehensive and robust analysis of AI adoption across selected top retailers. This involves a multi-dimensional approach that assesses various facets of AI integration and capability, leveraging a wide array of data sources and analytical techniques to ensure the accuracy and relevance of the insights provided.

METHODOLOGY



Selection of Retailers

Retailers were selected based on criteria including revenue size, category focus, and geographic presence. These selection criteria ensure that the Index reflects a diverse and comprehensive representation of the retail market, capturing a wide spectrum of AI adoption levels among significant industry players.

Benchmarking Parameters

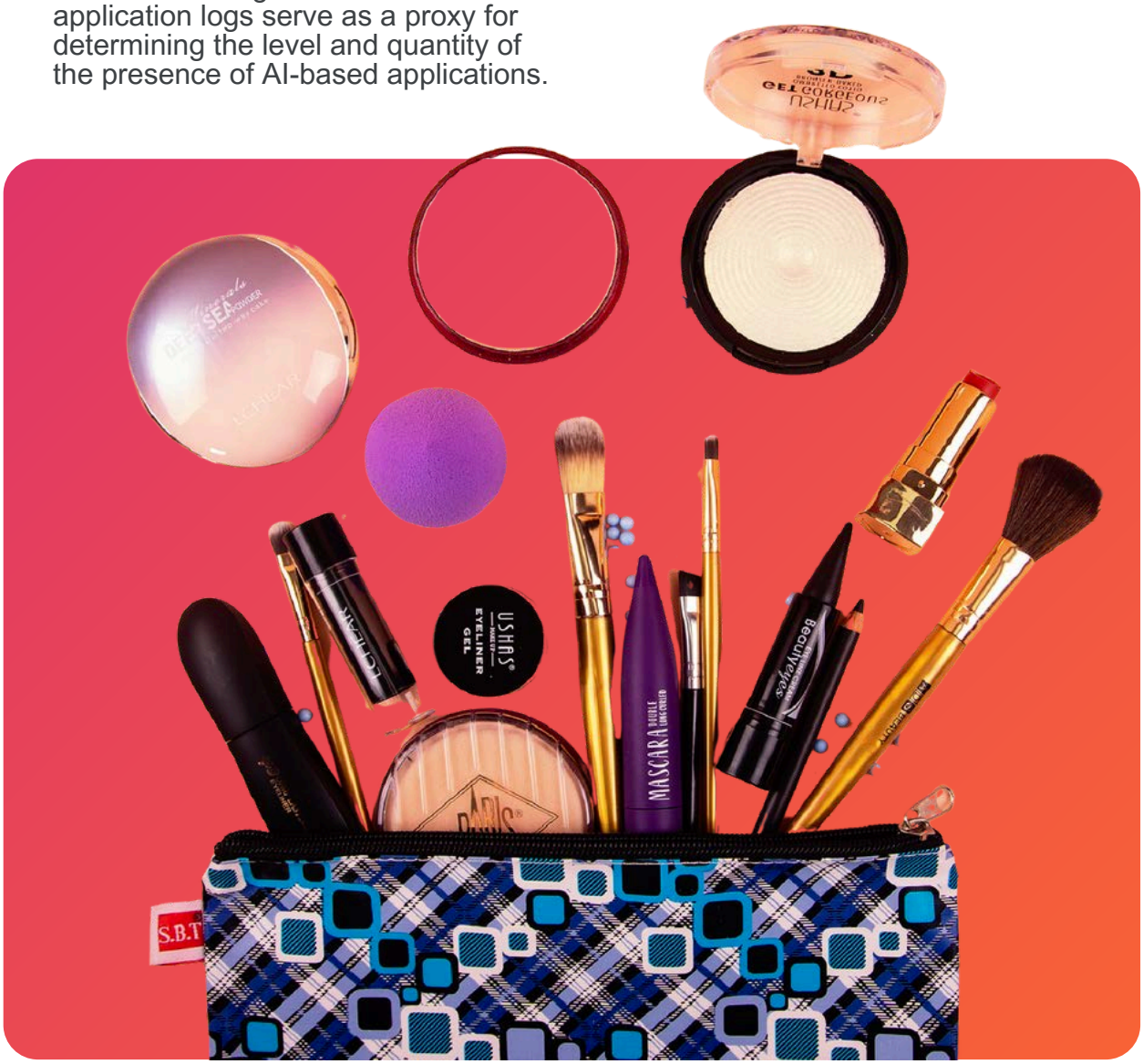
Definition of AI Adoption and the Dimensions Used to Assess It

AI adoption at each retailer is evaluated across four critical dimensions:

- **Talent / Operational:** This dimension measures internal retailer capabilities in AI through the number of AI-related employees, the proportion of AI talent relative to total employees, and AI-related job roles and postings. Data is sourced from LinkedIn for current employee counts and from Indeed.com for job postings. The weight assigned to this dimension is high, reflecting its strong indication of investment in AI capabilities and/or intent to invest in AI capabilities.
- **Company / Financial:** This dimension focuses on gauging historical and future investments in AI by analyzing financial documents and earnings calls for mentions of AI-related terms. This dimension, given a medium weight, uses sources including SEC documents and earnings calls to assess the retailer's commitment and implied strategic investments in AI.

METHODOLOGY, CONTINUED

- **Technical:** This dimension evaluates the implementation of AI technologies on retailer websites, categorizing applications into levels of AI adoption: automation, analytical AI, personalization, and generative AI. Data is collected via BuiltWith and analyzed to assess the prevalence and sophistication of these AI applications. A medium weight is assigned to this dimension, reflecting the emerging and somewhat opaque nature of AI integration within consumer-facing sites. BuiltWith's application logs serve as a proxy for determining the level and quantity of the presence of AI-based applications.
- **News / Media:** This dimension assesses AI-related marketing initiatives and media presence through the analysis of media mentions and press releases. Using the Meltwater database, this dimension pulls data on media coverage and partnerships that involve AI. This dimension is assigned a weight of high importance due to the transparency and insights offered into AI capabilities through public engagement.



METHODOLOGY, CONTINUED

Definition of Established and Emergent Categories

To enable a more granular analysis of AI adoption across the retail sector, we categorize AI technologies into established and emergent groups within each of the four key dimensions (Talent/Operational, Company/Financial, News/Media, and Technical).

This classification helps to differentiate the level of AI sophistication employed by retailers in the index.

METHODOLOGY, CONTINUED

Explanation of Data Sources and Tools Used in The Analysis

The Retail AI Index combines thousands of data points from first-party and third-party sources, including LinkedIn, Indeed, public filings, earnings calls, Meltwater, and BuiltWith. This extensive data collection serves as direct evidence or proxy for AI adoption in the retail sector.

To ensure accurate and in-depth analysis, various specialized tools are employed:

- Data Scraping Techniques: Used for extracting AI-related employment data from LinkedIn and Indeed.
- Media Analysis Software: Analyzes media coverage from Meltwater to assess AI's visibility in news and media.
- AI Categorization Algorithms: Applied to BuiltWith data to evaluate the technical implementation of AI technologies on retailer websites.

These methods provide a thorough and reliable synthesis, making the Index a robust tool for assessing AI adoption among top retailers.

Weighting and Scoring

Each dimension is assigned a weighting based on its importance to overall AI adoption. Talent/Operational and News/Media dimensions are highly weighted due to their direct indicators of AI integration and public engagement. Company/Financial and Technical dimensions are assigned medium importance, reflecting their role in providing foundational and operational insights into AI capabilities.

FINDINGS FROM THE RETAIL AI INDEX

Overview of AI-Powered Innovation Among Top Retailers

The analysis reveals a diverse range of AI adoption into the toolkits of leading retailers and brands. This list has been assessed across several analytical dimensions, with three core principles at the forefront of each retailer's or brand's deployment of AI:

- They keep the customer at the center of everything.
- They use AI as an accelerator for a purpose.
- They measure impact.

Starting on the next page, we've ranked the top 100 brands and retailers with the strongest customer-facing implementation of AI technologies.

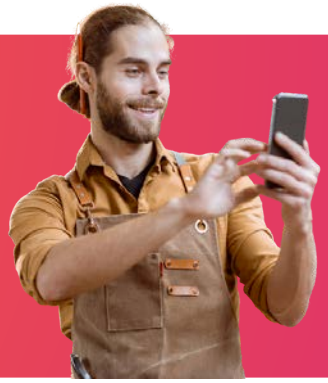
THE RETAIL AI INDEX RANKINGS

RANK	RETAILER
1	Amazon
2	Walmart
3	Stitch Fix
4	eBay
5	Wayfair
6	Sam's Club
7	Target
8	The Home Depot
9	Macy's
10	Nike
11	Adidas
12	Lowe's
13	ASOS

RANK	RETAILER
14	Gap
15	SHEIN
16	Levi Strauss
17	H&M
18	Poshmark
19	Revolve
20	IKEA
21	Crate and Barrel + CB2
22	SSENSE
23	Neiman Marcus
24	ThredUp
25	Abercrombie & Fitch

SPOTLIGHT: LOWE'S

Lowe's (#12) **combines AR and AI** in their Lowe's Vision: In-Store Navigation app. It uses AR to help customers find their way around the store while delivering personalized product recommendations, based on users' interests.



THE RETAIL AI INDEX RANKINGS

RANK	RETAILER
26	J.Crew + Madewell
27	Hollister
28	Fabletics
29	Ulta Beauty
30	Gucci
31	Best Buy
32	Under Armour
33	Crocs
34	The Children's Place
35	Ralph Lauren
36	ALDO
37	Kohl's
38	Nordstrom

RANK	RETAILER
39	Fanatics
40	Bloomingdale's
41	FIGS, Inc.
42	Saks Fifth Avenue
43	L'Oréal
44	e.l.f. Cosmetics
45	The Estée Lauder Companies
46	Dick's Sporting Goods
47	Rue Gilt Groupe
48	Everlane
49	Carter's
50	Torrid

SPOTLIGHT: ASOS

ASOS (#13) allows customers to input their style preferences for **personalized fashion recommendations**. Additionally, their "Buy the Look" feature uses ML to suggest complete outfits, based on site visitors' behaviors, purchase histories, and browsing histories.

THE RETAIL AI INDEX RANKINGS

RANK	RETAILER
51	Coach
52	JustFab
53	Costco
54	Savage X Fenty
55	Academy Sports + Outdoors
56	On AG
57	Lulu's Fashion Lounge
58	Frontgate
59	Lamps Plus
60	Patagonia
61	JJ's House
62	Belk
63	Chanel

RANK	RETAILER
64	PrettyLittleThing
65	Flight Club
66	Aritzia
67	Zara
68	Victoria's Secret
69	Rack Room Shoes
70	ASICS
71	Overstock + BBBY
72	Shoe Carnival
73	Ashley Stewart
74	Lululemon
75	Clinique

SPOTLIGHT: SEPHORA

Sephora's (#91) Modi Face Color Match lets users upload a photo of an item, like a handbag or jewelry, then receive makeup shades and products to match it. Additionally, their **AI-generated product descriptions** have improved their search engine visibility.

THE RETAIL AI INDEX RANKINGS

RANK	RETAILER
76	HSN
77	PacSun
78	Famous Footwear
79	Dillard's
80	Knitwell Group
81	Nordstrom Rack
82	Columbia Sportswear
83	QVC
84	Fashion Nova
85	Anthropologie, Free People + Urban Outfitters
86	New Balance
87	Maurices
88	Foot Locker + Champs Sports

RANK	RETAILER
89	Zappos
90	Backcountry
91	Sephora
92	Pottery Barn, West Elm + Williams-Sonoma
93	Bath & Body Works
94	Lands' End
95	Tory Burch
96	The Buckle
97	SPARC Group
98	BJ's Wholesale Club
99	Hibbett
100	Carhartt

SPOTLIGHT: WILLIAMS-SONOMA

Williams-Sonoma's (#92) "gift-finder chatbot" asks customers about the gift recipient's age, occasion, and price range, then **suggests personalized gifts**. These suggestions appear as cards or a carousel on Google Assistant, making shopping easier and more interactive.

FINDINGS, CONTINUED

Overall Observations

AI Adoption Leaders: Unsurprisingly, Amazon and Walmart rank highest in AI adoption due to their forward-thinking philosophy when testing and investing in technology. Amazon leads the pack due to its extensive and early AI adoption across its retail operations, its role in AI through its cloud services business, and its investments in Anthropic, one of the major emerging generative AI solutions.

As mentioned, both Amazon and Walmart have taken advantage of their size and significant financial resources to deepen and widen their adoption of AI throughout their businesses. **However, we saw no clear correlation between a retailer's Index rank and revenue overall, nor with revenue growth or stock performance (where applicable). This suggests that we're still in the nascent stages of AI integration and that the full financial impact has certainly yet to be realized. In short, it's still too early.**

Industry-wide recognition of AI's potential impact and the consequences of being left behind has driven most companies to explore various levels of AI adoption and different types of AI applications. In fact, NVIDIA tells us that 86% of retailers expressed a desire to use generative AI to enhance customer experiences.

Some major impacts are already seen within organizations that top this list, including improvements and enhancements across customer service, marketing, and e-commerce.

Still, we expect to see new AI-fueled opportunities bring even more value for retailers in the future.

Mid-to-Large Companies: Mid-sized companies such as Stitch Fix and Wayfair show significant AI adoption and are notable for their innovative applications, despite their relatively smaller revenue compared to global giants like Amazon and Walmart. This suggests that strategic investments in AI can lead to high impact on business outcomes. This is regardless of revenue size, particularly with e-commerce retailers, whose focus on customer experience, driven and enhanced primarily through sophisticated systems and data, built a more stable foundation for AI-related exploration.

Acquisitions and Partnerships: Many companies with higher AI adoption rankings have engaged in a number of acquisitions and strategic partnerships with AI firms. This trend is evident in companies like Wayfair (partnership with LLM startup ThirdAI), IKEA (investing in Waabi for self-driving trucks with generative AI), and Lowe's (Apple Vision Pro app), which have leveraged these strategies to enhance their customer-centric approaches to shopping, while simultaneously accelerating the pace of business and growing their bottom lines.

Mid-sized and smaller companies within the top 25 also recognize the near-term operational and customer-facing benefits that AI offers, having invested in strategic acquisitions and partnerships to stay competitive. There are many examples here, with some of the most notable being: Stitch Fix (integrating OpenAI's LLM embeddings to better understand textual client input), Poshmark (Suede One acquisition), Revolve (partnership with Maison Meta to incorporate AI into existing workflows), Neiman Marcus (partnering with Centric to use automation to improve their pricing, merchandising, assortment planning, marketing and e-commerce), and thredUp (adding more AI-specialized members to their board).

FINDINGS, CONTINUED

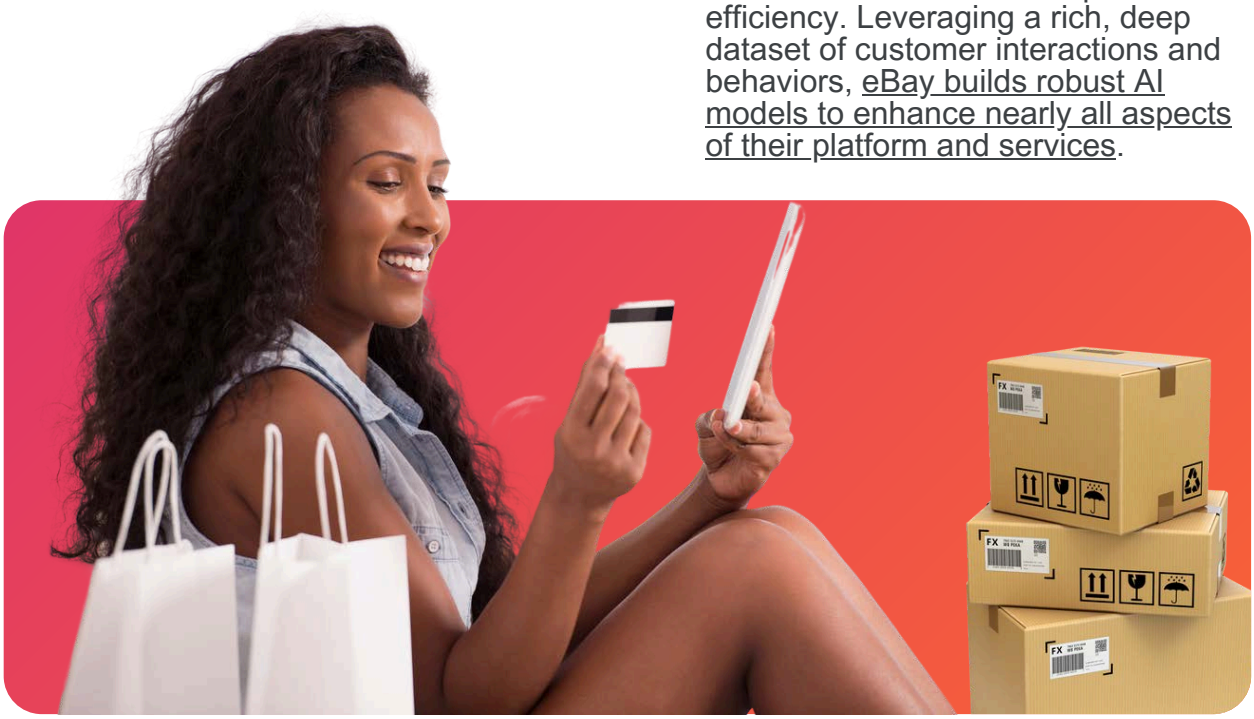
Comparison by Size Tier

Larger Retailers (Revenue > $10B): Despite having the top performers in the index, this group sees significant variance in ranking, ranging from Amazon (#1) down to BJ's Wholesale Club (#98), displaying the differing publicly-facing prioritization of AI among top companies.

- **Amazon and Walmart:** As one might expect, both companies lead in AI adoption, clearly having recognized AI's potential impact early on, and therefore continuing to leverage substantial financial resources to invest in advanced AI technologies and talent.
- **Wayfair:** As the largest e-commerce retailer specializing in home furnishings and decor, Wayfair maintains its competitive edge in a mobile and digital world, through its focus on customer-focused AI applications, such as its easy-to-use visual search and personalized product recommendations.

Mid-Size Retailers ($1B to $10B): With this range's top performers ranking at #3 with Stitch Fix and #4 with eBay, and the lowest ranking of Carhartt at #100, a clear separation occurs between the biggest retail players and the next tier, though much AI-led growth is occurring in this tier.

- **Stitch Fix:** This company stands out with a high AI adoption ranking. They leverage several AI-based technologies to deliver personalized shopping, building on their initial business model of tailored/recommended clothing bundles (through both manual inputs and analytical models). This targeted use of AI demonstrates that mid-sized companies can move toward significant AI adoption with focused investments that drive revenue and further their mission, while building on existing data and models.
- **eBay:** The original online retail marketplace boasts a similarly high AI adoption ranking, emphasizing both customer interaction and operational efficiency. Leveraging a rich, deep dataset of customer interactions and behaviors, eBay builds robust AI models to enhance nearly all aspects of their platform and services.



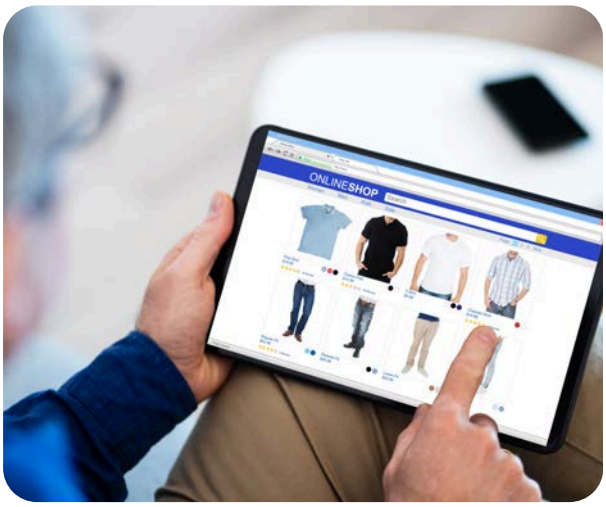
FINDINGS, CONTINUED

Smaller Retailers (Revenue < $1B): Smaller retailers typically ranked lower on the AI Index, with one factor being that, even if they're high growth, they likely have a relatively smaller budget for technology and acquisitions. However, several small but mighty retailers still made the top 25!

- **Poshmark:** This year, Poshmark introduced an AI-powered tool called Promoted Closet, which uses machine learning to match users' search terms with promoted listings. This feature aims to increase visibility and sales potential for sellers, while simultaneously creating more enjoyable customer journeys.
- **Revolve:** Ever the innovators, Revolve partnered with AI Fashion Week to sell AI-generated clothing on their website. The company showcased three winning collections generated by artificial intelligence, created using AI image generators like Midjourney and Stable Diffusion.
- **thredUp:** Their AI-powered search combines visual language with personal style, allowing customers to search for specific items, occasion-based outfits, and more, improving search results and conversion rates.

Comparison by Category

e-Commerce: Amazon and Walmart dominate this category, building on an impressive track record of innovation and excellence in logistics, e-commerce, marketplaces, and retail media. Time and again, they demonstrate their market leadership, including new shopping technologies and experiences that are increasingly powered, at least in part, by AI.



Furniture & Homeware: Wayfair leads in this category, utilizing AI for visual search and customer engagement through personalized recommendations, reflecting its strategic focus on enhancing the customer experience through technology. IKEA, currently ranked #20, is poised to move up as they make significant, customer-centric AI advancements, such as deploying their new AI-powered home design and shopping tool available in the OpenAI GPT Store.

Beauty: L'Oreal (#43) won eight awards at the 2024 Consumer Electronics Show, while simultaneously announcing a slew of new AI-powered products. Their innovative Beauty Genius AI technology, for example, delivers beauty advice, skin diagnostics, and personalized product recommendations. Now, shoppers can *virtually* test various shades of lipstick or even sample skin and hair care products to find the perfect color and formulation.

FINDINGS, CONTINUED

Key Insights by Dimension

News/Media:

- Top retailers and brands on the Index were often announcing and celebrating AI initiative stories in the media via press releases and interviews, and for good reason! The applications and results are exciting, and are both strategic investments and achievements to be celebrated. Take Target (#7) for example, which announced its investments in AI to enhance the shopping experience with its new generative AI-powered chatbot, Store Companion, which will offer faster service and deeper customer engagement.

- Media presence and partnerships with horizontal AI leaders like OpenAI and retail vertical AI leaders are common among top performers. These indicate a strategic focus on enhancing public engagement and brand value through AI-led customer journey enhancements and revenue growth, and are often showcased in press releases and case studies.

Financial:

- Generally, there is a clear correlation between financial commitment to AI and AI's direct impact on a brand's or retailer's financial growth. Companies like Amazon and Walmart show substantial investments in AI, as evidenced by mentions in financial documents and earnings calls. This financial commitment is a crucial driver of AI adoption, with Amazon showing a particularly aggressive approach, as evidenced by a significant increase in mentions from previous years.

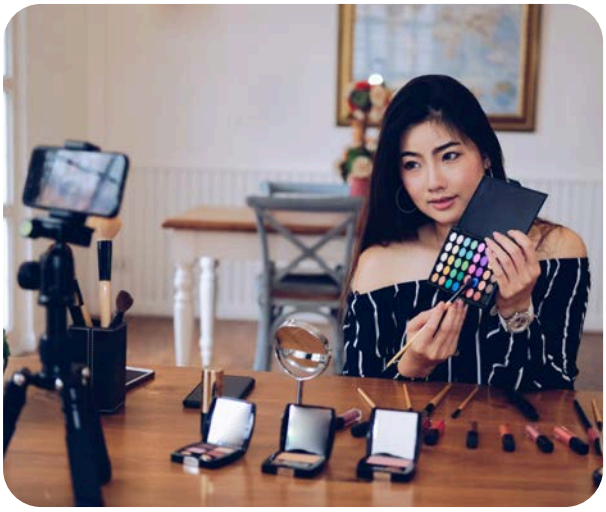
- Small to mid-size retailers also demonstrate financial commitment to AI. These brands and retailers often focus on specific use cases that provide high returns on investment, such as solutions that enhance product discovery and elevate how the customer interacts with the brand or retailer.

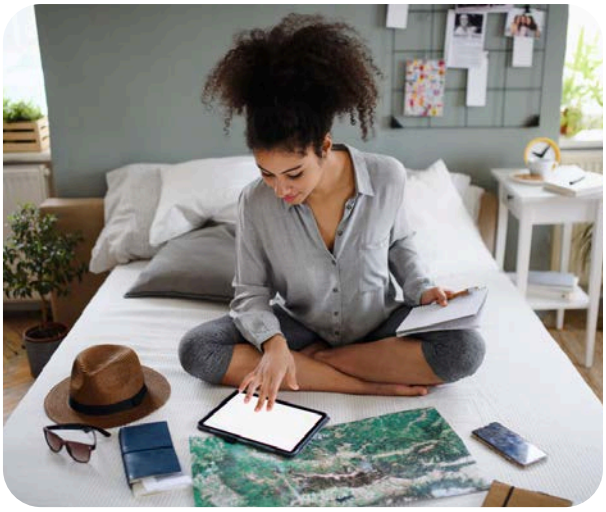
APPLICATIONS & CASE STUDIES

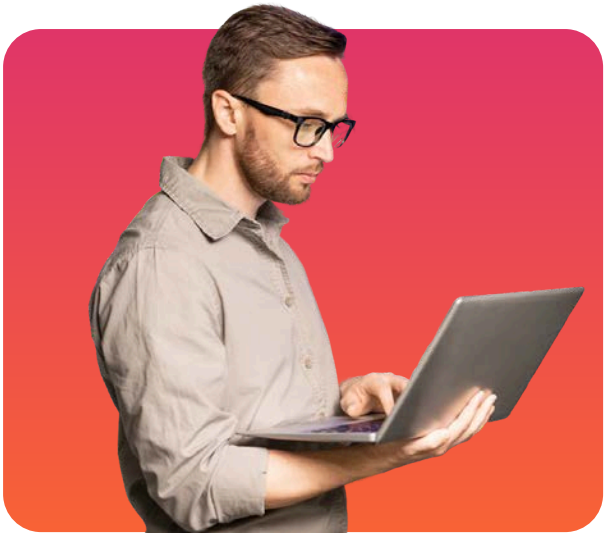
Retailers may feel as though they're experiencing a paradox of choice, when it comes to selecting the very best AI solutions to meet their needs. This is because—as you're very aware—investments in AI have skyrocketed and new solutions seem to be turning up every day.

Yet, these solutions may rely on core technologies that have existed for several years and have evolved over time.

Here, we will look at the state of AI today, through the lens of 10 critical metrics that show where it's currently at. We'll also take a deep dive into five core technologies that power AI solutions, examining how they've evolved over time, where they're heading, and which retailers or brands are implementing them in the most cutting-edge ways.







APPLICATIONS & CASE STUDIES, CONTINUED

10 Stats & Facts to Know About AI Today

The worlds of artificial intelligence and retail are intersecting, more and more as time goes on.

To understand how these worlds are intersecting, here's a look at 10 facts that explain the relationship between them.

1 The global AI in the retail market is expected to reach $23.6 billion by 2025, growing at a CAGR of 38.3% during the forecast period.

- The market size of AI in retail is expected to grow from $7.3 billion in 2023 to $29.45 billion in 2028 at a compound annual growth rate of 32.17%.

2 By 2025, 80% of retail executives expect their companies will use intelligent automation technologies.

- 40% already use some form of it.
- Despite the increased adoption, 49% of retail industry leaders feel that AI adoption is progressing at a pace they consider faster than ideal.

3 Companies that excel at personalization increase revenues by 40%, compared with companies that don't leverage personalization.

4 China leads in AI adoption, with 58% of companies having deployed AI.

- This makes sense, as the Asia-Pacific region stands out as the fastest-growing AI in retail market.
- Meanwhile, in the US, 25% of companies have deployed AI and 43% are exploring its potential applications.

5 AI's impact on website traffic is a big concern for businesses, with 24% of *Forbes* survey respondents saying they worry AI might affect their business' visibility on search engines.

APPLICATIONS & CASE STUDIES, CONTINUED

6 AI impacts shopping experiences off the web, as well. Over 60% of retailers affirmed that adopting AI in their stores enables them to meet customer service expectations.

7 In a 2024 consumer survey, over 1,000 respondents were asked in what online shopping areas would they most appreciate AI-driven personalization. The top two areas cited were 'more detailed product descriptions' and 'product recommendations based on my interests and past purchases.'

8 In that same 2024 survey, when consumers were asked whether they'd be more or less likely to shop with a retailer using AI, 25% indicated 'more likely,' while 50% said they were either unsure or it didn't matter.

- Despite the mixed feelings, 52% of fashion, home, and beauty consumers say that they think AI can make it quicker and easier for them to find the right products.

9 Interestingly, consumers are currently favoring AI in some customer service functions. 74% of customers prefer chatbots over a human corporate agents, when being used to solve their queries.

10 AI has already proved to be a game-changer for retailers, with 69% reporting an increase in annual revenue attributed to AI adoption.

APPLICATIONS & CASE STUDIES, CONTINUED

Deep Dives into 5 Different AI-Based or AI-Adjacent Technologies & How They're Evolving

From the 10 facts you just read, one can easily see that AI-based and AI-adjacent technologies are transforming multiple industries beyond retail. When it comes to the fashion, home, and beauty sectors, new technologies help by enhancing customer experiences and streamlining operations.

We've seen these technologies at play for some time now, as well. For example, In fashion, AI-driven tools have provided personalized shopping recommendations. Some retailers have offered virtual try-ons as a means to improve satisfaction and reduce returns. In the home and beauty sectors, smart mirrors and augmented reality (AR) applications enable customers to virtually try on makeup or visualize furniture in their homes before purchasing. AI-powered chatbots and virtual assistants provide 24/7 customer support.

All this is to say that these advancements in AI are redefining retail. Here's a look at the evolutions of a handful of them, with examples of retailers who are executing on them very well.

Augmented Reality

Augmented reality in retail is moving fast, enabled by smartphones and social media, meanwhile being accelerated and enhanced by AI. With AR-capable devices like smartphones in everyone's pockets, and AI making these experiences more immersive and personalized via virtual try-ons and product recommendations, the potential for web-enabled AR is huge.

While US and European shoppers are slower to start buying directly from social apps that include AR features, a whopping 80% of Chinese consumers already do this. Major brands are going in on AR, as well. Early wins like Nike's (#10) Snapchat filter and IKEA's (#20) Place app set the stage for more widespread use. Maybelline (L'oreal-owned, #43) built the world's largest AR mirror to market mascara. Macy's (#9) uses AR to improve the in-person shopping experiences. AI is at the core of it all, helping with real-time image recognition, resulting in better customer experiences.

Case Study: Lowe's

Lowe's (#12) has done a great job combining AR and AI. Their Lowe's Vision: In-Store Navigation app uses AR to help customers find their way around the store by overlaying directions onto the real world. AI makes this even better by giving recommendations based on what customers have bought before. For example, if someone is looking for paint, the AI might suggest other supplies or DIY project ideas. This mix of AR and AI not only makes shopping easier, but adds a personal touch, making shopping home improvement projects more fun.

APPLICATIONS & CASE STUDIES, CONTINUED

Machine Learning

Underlying and feeding into many of today's AI applications, machine learning (ML) is likely the broadest AI-technology being leveraged across the sector. Applications of ML commonly improve retail experiences by offering personalized, engaging customer interactions. For example, automated merchandising is a prominent use of predictive analytics ML. It accounts for 33.7% of the share of the global AI in retail market revenue.

The Home Depot (#8) effectively uses ML with their mobile app. This app provides project guides and product suggestions tailored to individual shopper needs and interests. In cosmetics, e.l.f. Cosmetics (#44) uses ML to enhance their digital marketing and creative strategies utilizing AI/ML to generate immersive and interactive content for virtual stores and digital campaigns.

ASOS Case Study

The ASOS (#13) Profile Builder allows customers to input their own detailed style preferences. In return, ASOS offers personalized fashion recommendations. This tool helps ASOS understand individual tastes, making it easier for customers to find and purchase items that fit their own individual styles. Additionally, ASOS's "Buy the Look" feature uses ML to suggest complete outfits, based on site visitors' behaviors, purchase histories, and browsing histories. ASOS also analyzes fashion trends and customer feedback with ML to keep their recommendations current and relevant.

APPLICATIONS & CASE STUDIES, CONTINUED

Deep Learning

The adoption of deep learning is expected to jump from 40% to over 80% in the next few years.

Wayfair (#5) was ahead of the curve when implementing this technology. They launched visual search capabilities in 2017, which let consumers upload images and similar-looking items. To do this, Wayfair used a mix of object detection, convolutional neural networks (CNNs), and natural language processing (NLP). Similar to Wayfair, Target (#7) used Pinterest Lens in its mobile app to help customers find products by taking pictures of items.

The potential for deep learning in retail is huge. It's expected to transform planning processes, improve sales and operational planning, enhance assortment planning by automatically spotting opportunities, and allow for early, well-informed promotion planning.

Amazon Case Study

Amazon (#1) is a prime example of how deep learning can be used effectively in retail. They use deep neural networks like recurrent neural networks (RNNs) and CNNs to find complex patterns in user behavior and item relationships. Amazon's recommendation engines process user interactions in real-time, generating personalized product recommendations instantly through streaming data and event-driven systems.

By creating user profiles based on past behaviors like purchases and browsing history, Amazon captures individuals' preferences and interests.

This deep learning-based collaborative filtering finds patterns between people and products, leveraging behaviors of similar customers to recommend products to others. Similar to Wayfair and Target, Amazon Lens allows users to search for products similar to those in an uploaded image.

Real-Time Analytics

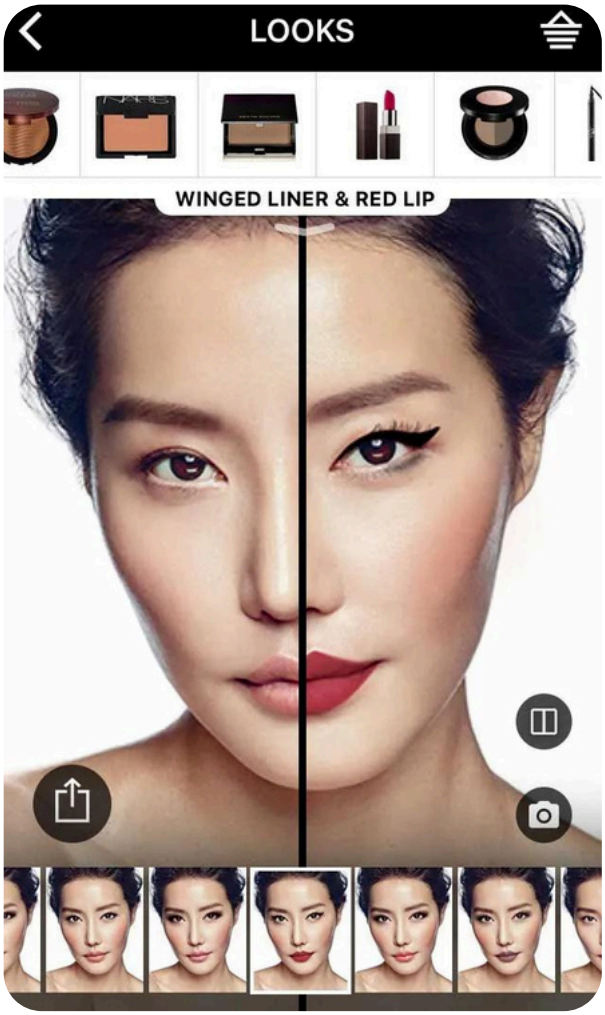
Real-time analytics is making a big impact in retail, with 80% of companies reporting increased revenue because of it. A survey from Solace found that 77% of retailers believe the benefits of event-driven architecture for real-time data distribution outweigh the costs, showing a strong trend towards adopting real-time analytics. Somewhat infamously, Target previously used real-time analytics to predict pregnancies, based on shopping habits and items purchased, which shows how powerful this technology can be.

Looking ahead, real-time analytics is expected to handle larger data volumes to support AI applications that deliver prescriptive analytics and provide actionable advice to users.

APPLICATIONS & CASE STUDIES, CONTINUED

Sephora Case Study

Sephora's (#91) Modi Face Color Match tool lets users upload a photo of an item, like a handbag or jewelry, then receive makeup shades and product recommendations to match it. Additionally, Sephora uses AI-generated product descriptions to improve their search engine visibility by 6%, targeting specific searches like "best foundation for sensitive skin." These uses of AI and real-time analytics boost customer engagement and optimize Sephora's SEO and digital marketing efforts.



Chatbots & Virtual Assistants

Consumers are warming up to chatbots. In fact, 62% of consumers prefer to interact with a bot over a human. Most people report that they're happy with their chatbot experiences, with 69% satisfied and 21% neutral.

They're also increasing revenue. Retail chatbots have boosted sales by an impressive average of 67%, with 26% of sales originating from initial interactions.

Early adopters like DSW showed the effectiveness of this technology, including a chatbot for real-time interaction with customers post-purchase. These interactions included follow-ups on delivery timing and change requests. The DSW Gift Concierge could also help customers find holiday gifts. H&M (#17) uses a chatbot on Kik to provide personalized outfit recommendations based on user preferences. Sephora's (#91) chatbot on Facebook Messenger debuted in 2016 and helped customers find beauty products by analyzing uploaded photos and offering makeup suggestions. It also provided tutorials and answered questions.

Williams-Sonoma Case Study

Williams-Sonoma (#92) developed a "gift-finder chatbot" that works with Google Assistant and Google Home. This virtual assistant asks customers about the gift recipient's age, occasion, and price range, then suggests personalized gifts. These suggestions appear as cards or a carousel on Google Assistant, making shopping easier and more interactive. This particular chatbot shows how advanced AI can understand context, tone, and intent. These advancements in technology are making chatbot conversations more natural and helpful, which will only continue to evolve and advance.

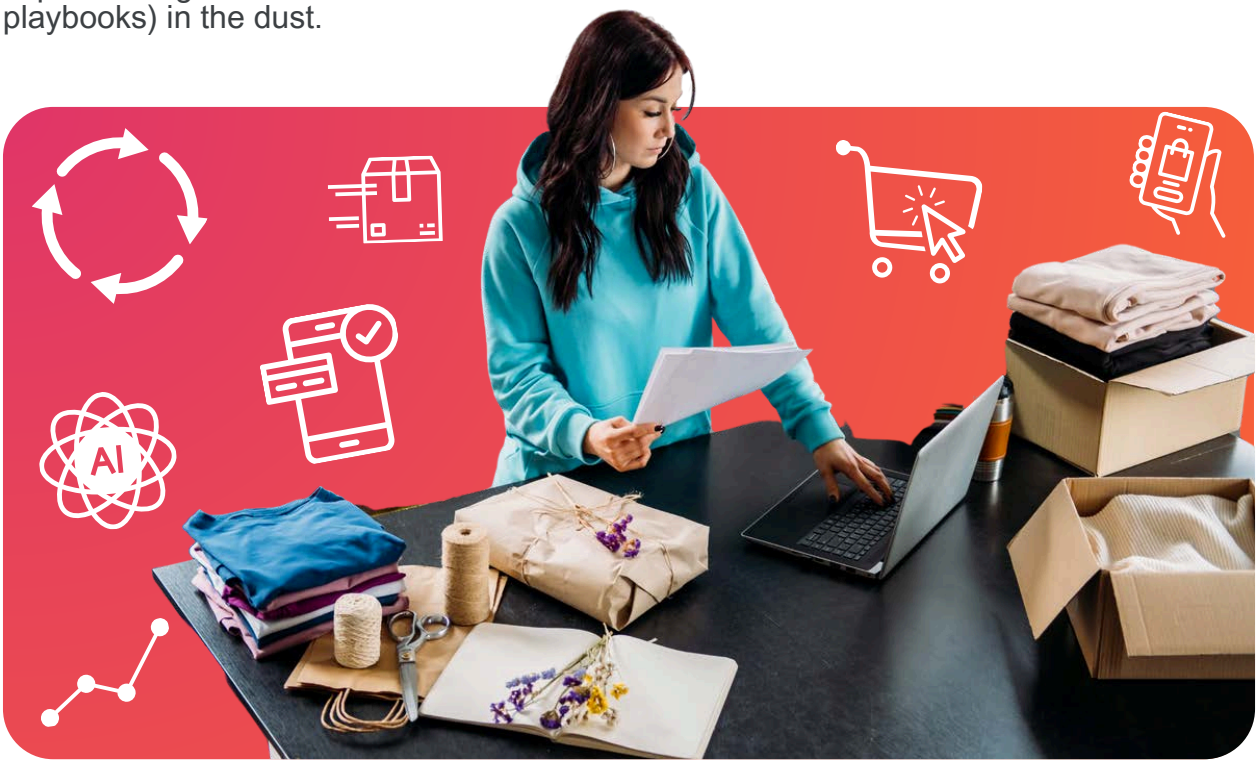
CONCLUSION

The leading retailers featured in the Retail AI Index are not merely adopting AI. They are at the forefront, testing and integrating it throughout their businesses. These brands and retailers are finding innovative ways to pull the industry forward, continually going farther and setting the bar higher.

And to be clear, that isn't easy–especially considering that significant advancements in AI, and generative AI in particular, are happening almost every day. It's hard to keep up! Yet both small and large retailers alike risk being left behind in the high-stakes, fast-paced AI race if testing and innovation aren't prioritized and appropriately funded. Playing "catch up" will become increasingly difficult, leaving the "fast follow" approach (of implementing others' successful playbooks) in the dust.

On the other hand, for top AI trailblazers, a competitive flywheel will start to emerge. Their public demonstration of AI adoption, either experienced first-hand as a shopper or in the news and media, will further make them more attractive to top talent. Top talent will know how to invest in AI technologies and partnerships to launch new, cutting-edge applications. The best applications of AI technology will drive higher sales and greater customer satisfaction, which they'll want to share and celebrate.

As this flywheel starts to build momentum, these AI trailblazers will reap the rewards in the months and years to come.



APPENDIX: GLOSSARY

This glossary provides definitions for the technical terms used in the The Retail AI Index. It aims to help users understand the key concepts and terminology related to and referenced throughout this publication.

AI (Artificial Intelligence): A branch of computer science focused on creating systems capable of performing tasks that typically require human intelligence, such as decision-making, pattern recognition, and language understanding.

AI Agents: Autonomous entities that observe their environment, make decisions, and perform actions to achieve specific goals, often used in simulations, robotics, and complex systems.

Augmented Reality (AR): A technology that overlays digital information, such as images, sounds, and text, onto the real world, enhancing the user's perception and interaction with their environment.

Automation: The use of technology to perform tasks with minimal human intervention, often involving repetitive or routine processes, to increase efficiency and reduce human error.

Chatbots: Computer programs designed to simulate conversation with human users, typically over the internet, using text or voice, to provide information, customer service, or other interactions.

Computer Vision: A field of AI that enables computers to interpret and understand visual information from the world, such as images and videos, to recognize objects, faces, and scenes.

Convolutional Neural Networks: A class of deep neural networks, most commonly applied to analyzing visual imagery. CNNs use a special architecture that includes convolutional layers, pooling layers, and fully connected layers, enabling them to automatically and adaptively learn spatial hierarchies of features from input images.

Deep Learning: A subset of machine learning that uses neural networks with many layers to model complex patterns in large amounts of data, often achieving state-of-the-art results in tasks like image and speech recognition.

Generative AI: A type of AI that can create new content, such as text, images, music, or code, based on patterns learned from existing data, often using models like generative adversarial networks (GANs) or transformers.

Global Maxima: In artificial intelligence, local and global maxima are mathematical concepts that can help people consider problems from a global perspective or focus on a specific aspect. A global maxima is the best possible state in the state space diagram, or the largest value in the whole function. It can also be defined as the largest value that a function achieves over all points in its domain. There can only be a single global maximum for each function.

Large Language Model (LLM): A type of AI model that has been trained on vast amounts of text data to understand and generate human-like text, capable of performing tasks like translation, summarization, and conversation.

APPENDIX: GLOSSARY, CONTINUED

Local Maxima: In AI, local and global maxima are mathematical concepts that can help people consider problems from a global perspective or focus on a specific aspect. A local maxima is a state that is better than its neighboring states, but there is a state that is better than it (global maximum). In other words, the value of the objective function is higher than its neighbors. A local maximum can also be defined as the largest value in a subset of a function, or the largest value that a function achieves at a particular point within its domain. There can be multiple local maxima for each region.

Machine Learning (ML): A branch of AI that focuses on developing algorithms that enable computers to learn from and make predictions or decisions based on data, improving performance over time without being explicitly programmed.

Multimodal: Referring to AI systems that can process and integrate information from multiple types of data, such as text, images, audio, and video, to make more informed decisions or provide richer user experiences.

Natural Language Processing (NLP): A field of AI that focuses on the interaction between computers and humans through natural language, enabling computers to understand, interpret, and generate human language.

Personalization: The process of tailoring content, recommendations, and experiences to individual users based on their preferences, behavior, and data, often using AI to analyze and predict user needs.

Real-Time Analytics: The analysis of data as it is created or received, enabling immediate insights and actions, often used in contexts where timely information is critical, such as financial trading or monitoring systems.

Recurrent Neural Networks (RNNs): A type of artificial neural network where connections between nodes can create cycles, allowing information to persist. RNNs are particularly suited for processing sequences of data, such as time series or natural language, because they can use their internal state (memory) to process variable-length sequences of inputs.

Small Language Model: A type of AI model similar to a large language model but with fewer parameters and trained on smaller datasets, often used in scenarios where computational resources are limited or specific tasks require less complexity.

Virtual Assistants: AI-powered software applications that can perform tasks or services for individuals based on commands or questions, often through voice or text, examples include Siri, Alexa, and Google Assistant.

ABOUT THE AUTHORS

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Gautham has 10+ years of experience advising multinationals, private equity and venture funds and startups, on a range of areas including strategy, finance, operations, diligence and most recently AI-related strategy. His industry coverage includes Retail, CPG, B2B and B2C Technology, Healthcare, Industrials and Energy. This included consulting with Bain & Company, where he led and worked on casework in several areas including Retail and Private Equity. Prior to that he provided research and data analytics support as part of multi-billion dollar litigation work at Analysis Group.

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Bard has 10+ years of experience providing market opportunity assessment, go-to-market strategy and market modeling services to CPG, Retail and Tech companies ranging from startups to Fortune 100 organizations to global PE funds. He previously served as Senior Director at International Planning and Research (IPR), a specialized consultancy providing market intelligence, product design and pricing services to leading global tech companies.

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Sarah is a seasoned consumer retail strategist and former Bain & Company consultant, dedicated to helping organizations build customer-centric businesses for the future. With over twenty years of expertise in the retail and consumer sectors, Sarah excels in integrating advanced AI technologies and retail tech solutions to drive operational excellence and sustainable growth. Sarah has worked full-time at world-renowned global retailers such as Louis Vuitton North America, Macy's Inc., Limited Brands, and Amazon. Sarah holds a Bachelor of Science degree with honors in Economic Policy from Cornell University and an MBA from Harvard Business School.

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Julie Bernard is CMO of Lily AI. Starting her career in merchandising at Saks Fifth Avenue, Julie later held a tenure at Macy's Inc. focusing on customer strategy, loyalty, and data science, before serving as CMO and CPO of Verve, a mobile marketing platform where she was instrumental in the company’s double-digit growth, global expansion, and exit strategy. Julie maintains board advisory positions with a variety of organizations, from startups to Fortune 500 companies.

Bridget Johnston

Bridget has a diverse background in creative technology, marketing, and AI. Prior to Lily AI, Bridget was leading marketing for Pattern89, an AI digital advertising company that was acquired by Shutterstock in 2021. At Shutterstock, she led content strategy with a focus on AI applications. She's written for C-SPAN and The Marketing Artificial Intelligence Institute, and created content for NASA, Nickelodeon, Disney, and National Geographic.

BEHIND THE INDEX

Lily AI is a female-founded retail AI company empowering retailers and brands by bridging the gap between merchant-speak and customer-speak. Leveraging generative AI, computer vision, natural language processing, machine and deep learning, Lily AI enhances shopping experiences by injecting human-centered language throughout the retail ecosystem. Interoperable with eCommerce, marketplace, and product management platforms, Lily AI maximizes existing technology investments to deliver upwards of 9-figure revenue lift through improved product attribution and descriptions, enhanced discovery, and higher conversion.

Learn more at www.lily.ai.

RADII Group provides support where needed, from growth strategy to operations, from strategic M&A to corporate VC, from pricing to cost reduction opportunities, from technological innovation to process improvements. RADII Group has worked with organizations ranging from several of the Fortune 10, and many of the Fortune 500, to a number of multibillion dollar Private Equity and Venture Capital funds, to startups and non-profits.

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