Retail 2025:
10 Trends in Retail Technology

January 6, 2025

Executive Summary

We present 10 key technologies that we expect to be influential in retail in 2025, including discussions of what we think is significant today and what will be important in the year ahead.

Coresight Research Analysis

In-Store

1. **Retail Computing: On the Edge and in the Cloud**—The center of computing has become decentralized, taking place both in the cloud and on-premises—i.e., on "the edge" of the network—driven by an explosion of data, the proliferation of in-store devices and the requirements of computer vision (CV).

2. **Computer Vision: The In-Store Swiss Army Knife**—CV is fundamental to easing friction for consumers and enabling many loss-prevention and inventory-tracking applications. The number of CV applications is likely to increase further in 2025 due to the ubiquity of in-store cameras and the growing number of capabilities and applications powered by AI (artificial intelligence) and CV.

3. **Mobile Devices Empower Frontline Workers**—Retailers face challenges from a high turnover rate and growing competition for associates from other sectors. Mobile devices provide one possible solution as these devices help train associates, make them more efficient and assist them in providing better customer service, creating a better work environment.

4. **The Store: Retail Media's Final Frontier**—Expanding retail media into the store presents a large and lucrative opportunity that retailers should consider now in order to stay ahead of the competition.

E-Commerce

5. **Shopping Nirvana: Images, Voice and Natural Language**—Currently, various technologies for image, voice and natural-language search exist. In 2025, these technologies will be increasingly combined, with AI integration leading to superior customer experiences and more sophisticated and seamless offers.

6. **Personalization at Scale Could Finally Be Here**—Today, customer data platforms (CDPs) can identify unknown customers and enhance segmentation and targeting. However, moving forward, GenAI (generative AI) will be able to create personalized, relevant messages and communications based on the customer profiles provided by CDPs.

Operations

7. **Democratize Data Access & Analysis**—Often, enterprise data are siloed and unstructured. GenAI enables everyone in an enterprise to access data that are stranded in silos and in unstructured formats via natural language.

8. **Agentic AI Is Here**—Several major enterprise software providers have announced the availability of AI agents, as well as the tools required for creating them, meaning that AI agents are likely to see increased deployment in 2025 and beyond.

9. **GenAI Can Unlock Supply Chains**—GenAI can acquire unstructured data from the entire supply chain and allow users to ask questions using natural human language. As we move forward, we expect AI agents will increasingly manage unplanned supply chain events.

10. **Demand Forecasting 3.0**—Advanced demand forecasting tools leverage ML (machine learning) and external data to create highly accurate forecasts. Now, GenAI offers the ability to incorporate unstructured data to improve forecasts and to query forecasts using natural language.

What We Think

Retailers and brands are currently in the enviable position of having several powerful technologies to choose from to make their businesses more productive and efficient, as well as to entrench themselves with their customers. AI appears practically everywhere throughout our list of retail technology trends, from computer vision and visual shopping and search to data analysis and personalization. Building on this potential, GenAI promises to bring the power of AI to everyone, and, though in the early stages, AI agents will be able to act on our behalf, bringing even more productivity gains and new capabilities to the masses.

Contents

Introduction

Undoubtedly, 2025 promises to be an exciting year for retail technology, as retailers and brands have a growing selection of technologies to choose from, with many technologies benefiting from advances in AI (artificial intelligence). At this point, many retailers have moved beyond the experimentation stage and have deployed GenAI (generative AI), further improving via accelerators, productivity enhancers and new capabilities. For those unwilling to get stuck in with large language models (LLMs), there are a myriad of applications available that enterprises can use to do the heavy lifting. Moving forward, AI agents promise to bring a new wave of AI excitement, as these autonomous, intelligent programs can act on our behalf and even communicate and interact with other agents.

This report, part of our *Retail 2025* series, delves into the 10 key technologies that we expect to be influential in retail in 2025, including AI, GenAI, computer vision (CV) and more. It is made available to non-subscribers of Coresight Research through its sponsorship by Intel.

Retail Technology: Market Outlook

Directional Outlook

The climate for retail tech spending remains largely positive, driven by the need for retailers to invest in tools to remain competitive in a relentlessly competitive sector. Positive retail sales growth acts as an enabler for investment, and the current, high level of retail-tech innovation is producing numerous new-and-improved applications and platforms.

Sector Outlook

We expect the following technology categories to receive a relatively greater share of retail-tech investments:

- **AI and GenAI**—We are clearly in a period of great excitement around AI, driven by the advent of GenAI and continued demonstrations of AI's powerful benefits. Now, more than two years after the watershed launch of ChatGPT 3.5, enterprises are benefiting from a flourishing landscape of AI models, platforms, applications and agents, in addition to AI-driven tools that can help create AI applications. Moreover, retailers and enterprises can take advantage of multiple layers of AI, including automation, algorithms, machine learning (ML), GenAI and AI agents to solve their business problems and achieve their business goals. AI is also a foundational technology for CV—which continues to gain new features and flexibility—a technology that can perform many in-store functions for consumers and retailers alike, greatly enriching the shopping experience.

- **Edge Computing**—AI is bringing some computing back to retail premises, though it is different from the premises-based computing of old. Edge devices and servers now contain processors with AI cores and GPUs, allowing data and video processing to be performed within stores at quicker and more cost-effective rates than those seen when sending data to the cloud.

- **Supply Chain Technologies**—Despite the Covid-19 pandemic sitting firmly in the rear-view mirror, supply chains have not returned to their pre-pandemic configurations and remain as challenged as ever due to commodity prices, shipping disruptions and the slow recovery (or volatility) of the supply of key inputs. Rapid changes in customer preferences and shopping habits add further variability to supply chains. New technologies, such as tags for items and containers that can provide location data and GenAI, can fill in the gaps. For example, GenAI can make sense of unstructured supply chain data, while AI/ML is a core technology behind demand forecasting and inventory and pricing optimization.

Tailwinds and Headwinds

Tailwinds

- Continued economic and retail sales growth
- AI and app fatigue, which are driving enterprises toward modern data structures and comprehensive platforms
- Successful demonstrations of AI use cases and ROI (return on investment)
- High-margin revenue from new sources, such as retail media, selling data and licensing technology

Headwinds

- Pressure on consumer budgets from the absolute level of prices, though inflation has subsided
- Retailers' reluctance to make large bets on technology
- Spending on AI, which could starve other areas

Pervasiveness of AI

AI, ML and GenAI underlie our top 10 tech trends due to their ability to analyze large amounts of data to find relationships, anomalies and opportunities in an automated and robust fashion—many of these opportunities may not be visible to the human eye or would require years of analysis to find. GenAI, in particular, brings an interface that utilizes natural human language to analyze the data, enabling anyone to perform ad hoc analysis: data analysis is no longer only relegated to data scientists and does not require hours of programming or creating dashboards. In addition to data analysis, GenAI enables the creation of text, images, video, audio, synthetic data, and, perhaps most importantly, computer code.

Coresight Research has developed our CORE Framework for AI in retail to give retailers and brands a head start in strategizing around AI deployment. The framework classifies the applications of AI within four main categories that can help retailers win new business, run their operations more efficiently and create strong relationships with their customers. Sustainability occupies the center of the framework, as efficiency and productivity gains mean the consumption of fewer resources. We view AI as a fundamental technology that can improve all of a retailer's activities, and we envision its application across all the trends outlined in this report.

Figure 1. The Coresight Research CORE Framework for AI in Retail

Source: Coresight Research
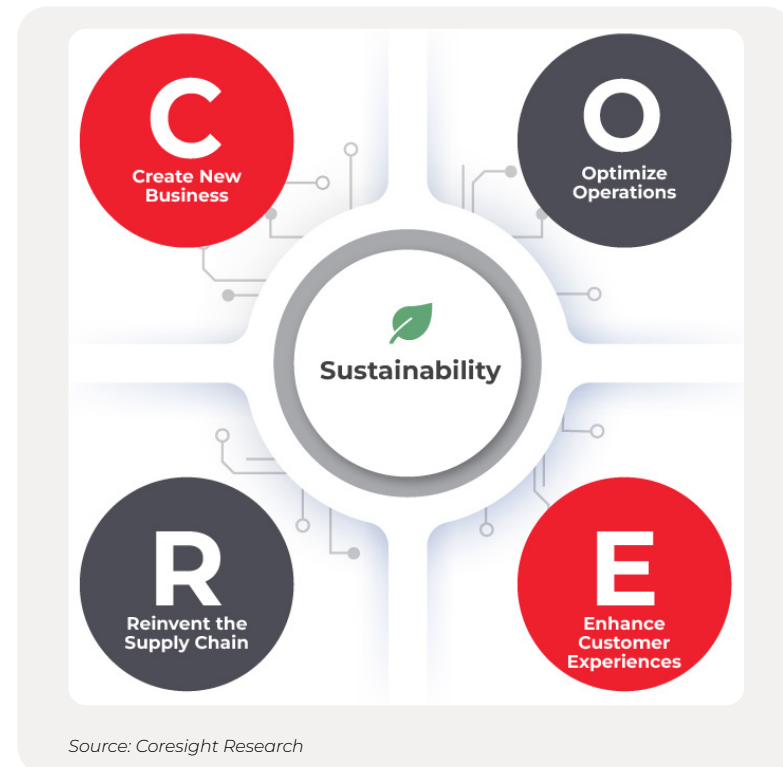
10 Trends in Retail Technology for 2025: Coresight Research Analysis

In Figure 2, we summarize our top 10 retail technology trends for 2025, categorized into three areas: in-store; e-commerce; and operations. We delve into each trend below.

Figure 2. 10 Trends in Retail Technology for 2025

In-Store

1. Edge computing
2. Computer vision
3. Mobile devices
4. Retail media

E-Commerce

5. Shopping nirvana
6. Personalization

Operations

7. Enterprise data
8. AI agents
9. GenAI-powered supply chains
10. Demand forecasting

Source: Coresight Research

What to Know Now

The center of computing has become decentralized, taking place in the cloud and on-premises—i.e., on "the edge" of the network—driven by an explosion of data, the proliferation of in-store devices and the requirements of CV.

What's Important in 2025

The continuing development of AI and CV will increase computing requirements, and edge computers, or AI PCs and devices, will continue to become more powerful as more AI chips and functions are added.

Discussion

Whereas, previously, the center of computing had largely migrated from on-premises to the cloud, today, we are witnessing a shift to hybrid cloud configurations in order to serve the proliferation of in-store devices and data-rich applications. This shift allows for a more efficient distribution of computing tasks between on-premises and cloud infrastructure—with each segment doing what it does best—optimizing performance and responsiveness. In Figure 3, we illustrate the interaction between the cloud and a bevy of edge devices, which may leverage processing on the edge, in the cloud, or both.

Figure 3. In-Store Devices That Can Compute on the Edge or in the Cloud
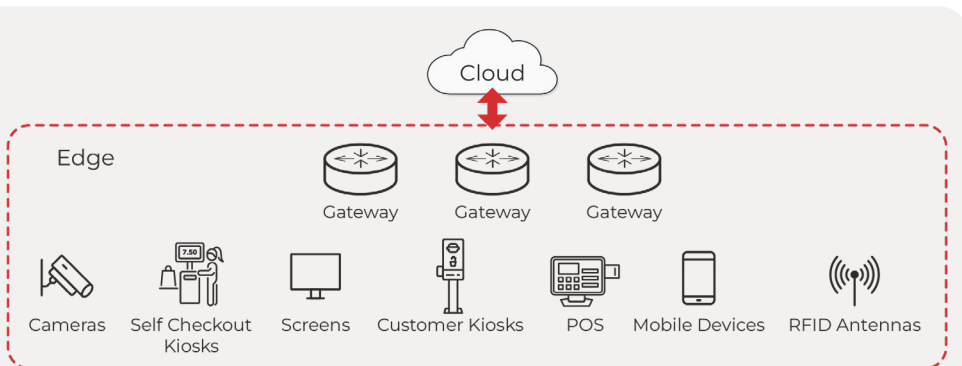
Source: Coresight Research

Retail stores are replete with many devices—POS (point-of-sale) terminals, associate mobile devices, shelf-edge cameras, robots, displays, overhead cameras and traffic counters, among others—and this list continues to grow as new applications are invented. Many of these devices, such as cameras that operate in near real time, require a speedier response than that provided by sending data to the cloud, processing it there and awaiting a reply (i.e., they require lower latency).

There are also opportunities to deploy AI within retail stores, using the technology for personalization, managing retail media networks (RMNs), clienteling, interactive experiences and CV applications. All of these applications require in-store computing, in the form factor of an edge device and an on-premise edge server. CV, in particular, requires a substantial amount of resources in terms of latency requirements and data generation. Video files are often large (transmitting 1080p video requires a data rate of five megabits per second (Mbps)) and require significant computing resources, whereas on-premises systems represent more of a fixed cost; for instance, the Dell PowerEdge XR7620 server, which is suitable for AI and ML, retails for about $12,000 and runs on the 4th Gen Intel® Xeon® Scalable Processor.
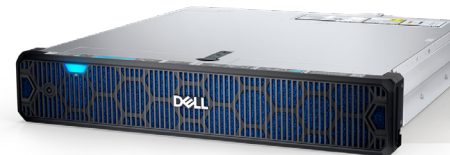
Dell PowerEdge XR7620 Rack Server
Source: Dell

To support the needs of AI, current generations of PCs (also called edge devices) and servers now feature AI capabilities. For example, edge devices with new Intel Core Ultra processors integrate dedicated NPUs (neural processing units—i.e., AI functions) and enhanced built-in GPUs, which can share the processing load with the CPU and are designed for power efficiency, performance, integrated graphics and AI capabilities. The server displayed above contains 12 processor cores in addition to supporting AI-related features, such as matrix calculations and accelerators for deep learning.

Vendors of edge computing hardware include various leading PC providers, such as Dell, HP and HP Enterprise, and Lenovo, as well as specialists such as Supermicro; the products provided by these companies often include chips and processors from the likes of AMD, Intel and Nvidia.

- **Read More on This Trend**: Read our *Retail Challenges Drive Edge Technology Investment* report for an outlook on US retailer IT spending and the categories that retailers expect to have the greatest impact on revenue.
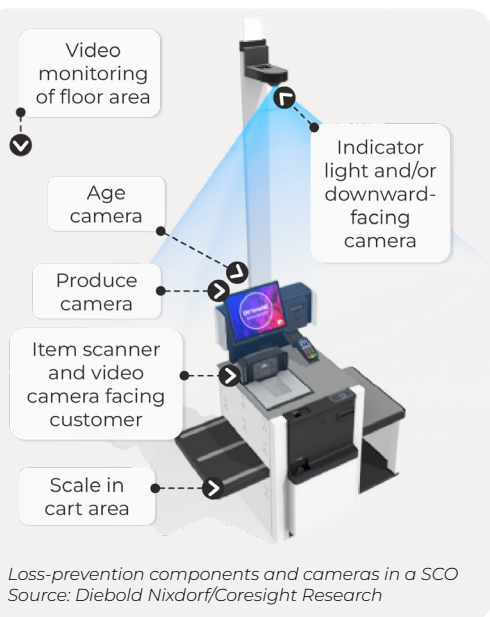
What to Know Now

CV is fundamental to collecting data, enabling many loss-prevention and inventory-tracking applications, and easing friction for consumers, thereby improving the shopping experience.

What's Important in 2025

The number of CV applications is likely to increase further in 2025 due to the ubiquity of in-store cameras and the growing number of capabilities powered by AI and CV.

- Video monitoring of floor area
- Indicator light and/or downward-facing camera
- Age camera
- Produce camera
- Item scanner and video camera facing customer
- Scale in cart area

Loss-prevention components and cameras in a SCO
Source: Diebold Nixdorf/Coresight Research

Discussion

CV continues to find new applications within physical stores due to the ubiquity of cameras and the potential of AI-powered CV. Moreover, new, previously unimagined applications powered by GenAI are just around the corner—these emerging applications will support various business functions, including inventory tracking, store operations and data collection.

Inventory Tracking

Cameras with and without CV can occupy several locations within the retail store, including in the ceiling, on the shelf edge, in smart shopping carts, mounted on robots that cruise around throughout the store, in handheld devices, inside self-checkout kiosks and even on other locations, such as in automated vending machines and on refrigerator doors.

Cameras in the ceiling are a key technology in enabling seamless, or "just walk out," shopping. Amazon uses a fusion of cameras and sensors in its Amazon Go stores, as opposed to CV-only solutions such as Trigo and the recently defunct Grabango, which offer simpler solutions lacking physical sensors. Recently, Amazon has pivoted toward using its own Dash Cart technology for its grocery stores, despite its prior assertions that its "Just Walk Out" technology was robust enough to handle the associated complexity.

CV is also a core technology in self-checkout kiosks (SCOs), most notably in regard to scanning items; identifying produce; determining purchasers' age for products such as alcohol and cigarettes; thwarting customer theft and errors at the kiosk; and reducing transaction times.

Shelf-edge cameras, such as VusionGroup's Captana and Trax Retail's cameras, leverage CV to track the location of items within a store. As shelf-edge cameras are mounted in a fixed position on a shelf, their field of view is limited compared to robot-mounted solutions, such as those from Badger Technologies and Simbe, whose cameras can traverse the store aisle and swivel to capture a wider field of view.

Loss Prevention and Associate Safety

Cameras and CV play a pivotal role in loss prevention: Cameras located at the entrances and exits of a store can capture photos of shoplifters, while item tags, such as RFID (radio-frequency identification) tags, can identify what was stolen. CV can identify potential shoplifting activities and dishonest transactions such as loitering or shelf sweeps, ensuring the health and safety of customers and associates. Moreover, facial recognition is becoming less controversial as it sees applications in airline travel, and several retailers are now using the technology to identify known shoplifters and suspects before they can commit theft inside the store.

Operations and Data Collection

CV can collect a variety of shopper and in-store data, such as shopper emotions and queue wait times, and measure shopper traffic, enabling the creation of heat maps for optimized store layouts.

- **Read More on This Trend:** *RetailTech: Loss Prevention—Understanding the Big Picture To Prevent, Mitigate and Recover "Shrink"ing Profits*

Easing Friction for Consumers

CV offers several opportunities to improve the in-store customer experience. For example, SCOs and smart carts can leverage CV to scan barcodes and identify produce, in addition to SCOs using CV to determine a purchaser's age, decreasing purchase times for orders that contain alcohol or cigarettes. Other CV uses include determining heatmaps for better store layouts and measuring the length of checkout lines to deploy additional cashiers during busy times.
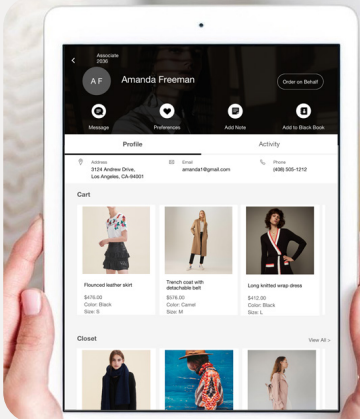
What to Know Now

Retailers face challenges from a high staff turnover rate and growing competition for associates from other sectors.

What's Important in 2025

Mobile devices provide one possible solution as these devices help train associates, make them more efficient and assist them in providing better customer service, creating a better work environment.

Clienteling app on an associate's tablet offering recommendations for customers
Source: PredictSpring

Discussion

Retailers currently face challenges in hiring and keeping associates due to a confluence of factors. Perhaps most notably, several non-retail sectors, such as restaurants and delivery services, offer higher pay due to recent government legislation, as well as more flexibility in terms of working hours.

The retail industry also faces a high staff turnover rate—around 60% annually, according to our analysis of Bureau of Labor Statistics (BLS) data—which results in higher onboarding, training and recruiting expenses. A high staff turnover rate also results in a steady stream of new associates, making it challenging for customers to see a familiar face when they enter the store.

Retail industry employment stood at slightly below 16 million in October 2024, according to the Federal Reserve Bank of St. Louis, a number that has trended upward since the end of the pandemic and now stands roughly in line with October 2016 levels. However, US retail sales increased by 53% in 2016–2023, meaning that the same number of associates is supporting a substantial increase in sales. Doing more with less takes its toll on associates: 79% of associates stated that they feel stressed due to the complexity of day-to-day work, according to Zebra Technologies' *17th Annual Global Shopper Study*, published in November 2024. These challenges also take a toll on customer sentiment: 70% of consumers stated that it is hard to find an associate to help them while shopping in a store "these days," per Zebra's study.

Mobile devices can assist associates with training and operations, enable upselling and improve the employee experience, which, ultimately, improves customer sentiment and boosts return visits. Today's mobile devices are much more than simple handheld scanners: they are powerful mobile computers.

Employee devices can also boost sales. For instance, associates can add an extra forgotten item to a BOPIS (buy online, pick up in-store) order at pick up, and intelligent devices can include order histories to help associates make relevant suggestions, either on their own or with the help of AI-powered tools that utilize previous purchases, searches, service conversations and other data to offer hyper-relevant recommendations. The latest generation of handheld devices is able to run LLMs, putting the power and the creative abilities of GenAI into associates' hands, creating more possibilities for clienteling than ever before—for example, GenAI could create an image of an outfit for the customer, allowing them to see how various items work with each other. The power of these intelligent tools enables new hires to access the customer's accumulated history with the retailer, allowing the new associate to act in a similar manner to a long-acquainted personal shopper.

In addition to processing transactions, these devices serve as intelligent work hubs for associates, enabling them to consume training videos, look up company policies, make changes to their work schedule and communicate with coworkers via their devices, allowing them to spend more time with customers. Additionally, possessing their own devices makes employees feel more valued by their employers—they particularly value being able to set their own schedule: 53% of retail managers believe that enabling employees to select their preferred locations, hours and days would contribute to higher employee retention and satisfaction, according to a proprietary Coresight Research survey of mid- to large-sized global employers (conducted in September 2021).

- **Read More on This Trend**: *Equipping Frontline Workers with More Mobile Devices to Drive Revenue and Delight Customers*

What to Know Now

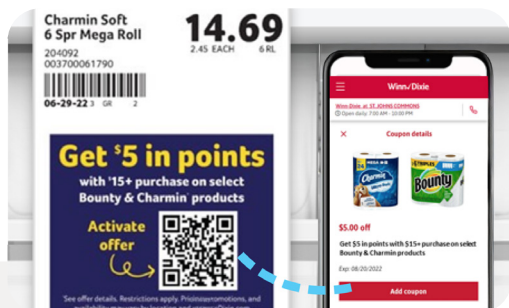RMNs have continued to grow rapidly throughout 2024, offering impressive margins.

What's Important in 2025

Expanding retail media into the store presents a large and lucrative opportunity that retailers should consider now in order to stay ahead of competition.

Shelf-edge screen
Source: VusionGroup

Shelf-edge promotion and associated app connection
Source: Vestcom

Discussion

Amid the ongoing retail media boom—there are more than 200 RMNs in operation as of November 2024, according to campaign tool provider Mimbi—the retail store remains a challenging, albeit lucrative, new frontier. The opportunity remains key as in-store retail represents about 77% of US retail sales, according to Coresight Research estimates, which means that the in-store revenue opportunity is 4X that of the online opportunity.

Screens can be placed in multiple in-store locations, including above deli and bakery counters and on shelves, endcaps, shelving rails, smart carts, cooler doors and SCOs. Electronic shelf labels can also contain ads and promotions. However, putting screens in stores poses significant challenges when compared to online retail media options:

- First, there is the physical aspect—Screens are hardware that must be installed, connected to electrical power and an ad network, and maintained, repaired and upgraded. This presupposes a certain amount of store infrastructure, including a reasonably fast and stable Internet connection.

- Second, the online portion of the retail media landscape is already highly complex, comprising retailers, digital marketing platforms, media accelerators, analytics firms and a handful of in-store advertising firms. Adding hardware to this already fragmented sector adds another layer of intermediaries and complexity that must be managed.

Challenges of attribution and standardization become even more thorny in the physical store, as there are few acceptable ways to determine which advertising a customer has viewed. While there are technologies such as traffic counters, cameras and cellphone-tracking technologies, many of these ignite consumer concerns about privacy. These types of concerns have already arisen surrounding in-store displays on refrigerator doors and the data they could collect on the age, gender and ethnicity of shoppers; additionally, US Congress members have questioned Kroger on its intention to use facial-recognition technology to inform dynamic pricing processes, which they fear could be used to gouge consumers. In-store displays could also include outward-facing cameras, collecting demographic information, as well as presence and dwell times, meaning they could be subject to the same privacy concerns.

Smart shopping carts from vendors such as Amazon, GK Software, Instacart (Caper), and Shopic represent one area of retail media that can be highly personalized and provide attribution. When a customer logs into the cart, it gains access to the customer's shopping history and shopping list; AI/ML can then analyze this data to determine the best advertisements to present or those that fit the retailer's preferences. When the customer checks out, the final purchase list can be analyzed versus the advertisements displayed to determine their effectiveness.

Not every retail medium requires in-store screens. For instance, Walmart produces its own in-store radio network, while the company Rockbot offers both audio and video solutions for retailers. On the other hand, Vestcom produces stick-on price labels that often appear in major US drugstores, with the stores typically receiving a new batch weekly. These tags can feature pricing, product and promotional information, as well as connect to the retailer's smartphone app via a QR code, which can provide shoppers with supplemental product information and confirm attribution.

- **Read More on This Trend**: *Retail-Tech Landscape: Retail Media*; all our coverage of retail media
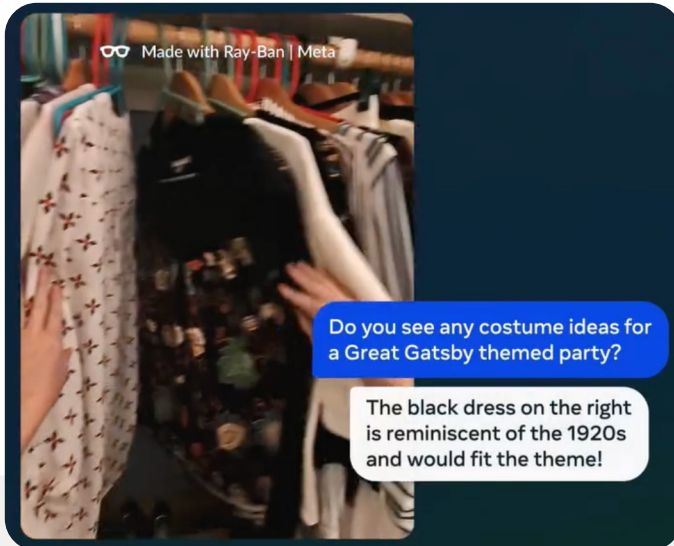
What to Know Now

There are currently several AI-based technologies for image, voice and natural-language search.

What's Important in 2025

In 2025, these technologies will increasingly be combined, with AI integration leading to more sophisticated and seamless offers.

Meta's Ray-Ban glasses leveraging voice, image recognition and GenAI
Source: Meta

Discussion

Retailers and consumers are set to benefit from the confluence of three technologies: image recognition and generation, voice recognition and natural-language understanding. Currently, these technologies are being combined with the intelligence of large language AI models to create powerful new ways to market products to consumers.

- Image recognition has been transformed into visual search—the futuristic concept of snapping a photo from a magazine, catwalk model or person on the street and being able to identify and purchase the same item (or at least a similar one) is now here. Basic technologies, such as Google Lens, enable the identification of images and translation of text, allowing users to search for similar images online. Meanwhile, GenAI can create illustrations of objects, complete outfits and appropriate backgrounds on the fly for enhanced brainstorming and shopping.

- Although voice shopping exists today, it has yet to gain widespread acceptance; however, the technology continues to advance, and voice search could become a must-have application when combined with other leading-edge technologies, such as GenAI. Most notably, GenAI makes applications multi-lingual, enabling real-time translation between languages without requiring intermediate translation into English. Voice recognition-powered GenAI chatbots offer the opportunity to communicate in an interactive and flexible manner, which feels more like a genuine human conversation, while simultaneously utilizing GenAI's capabilities to analyze data and create content.

- Meta has provided a view of the future with its ability to leverage several proprietary technologies—augmented reality, voice recognition and LLMs—via its Ray-Ban smart glasses. During a demo at Shoptalk Spring 2024, a speaker from Meta demonstrated a spoken conversation with the glasses as they sought recommendations on an outfit for an event. Later, the Meta Connect 2024 keynote featured a similar demonstration, with the glasses providing an analysis of a live video of a rack of clothing based on the user's verbal questions, as depicted in the image below. Meta's Orion augmented-reality (AR) glasses add the ability of the wearer to view images generated by the device.

Read More on This Trend: *RetailTech: Computer Vision—Approaching the Holy Grail of Ubiquitous Visual Search*

6 | *Personalization at Scale Could Finally Be Here*

What to Know Now

Customer data platforms (CDPs) can identify unknown customers and enhance segmentation and targeting.

What's Important in 2025

Moving forward, GenAI can create personalized, relevant messages and communications based on the customer profiles provided by CDPs.

Discussion

Personalization has long been a dream of marketers, yet this dream has largely remained elusive for a multitude of reasons. Although it would be foolish to declare that long-imagined personalization is just around the corner, there are technologies available today, such as CDPs, that can move marketers in the right direction.
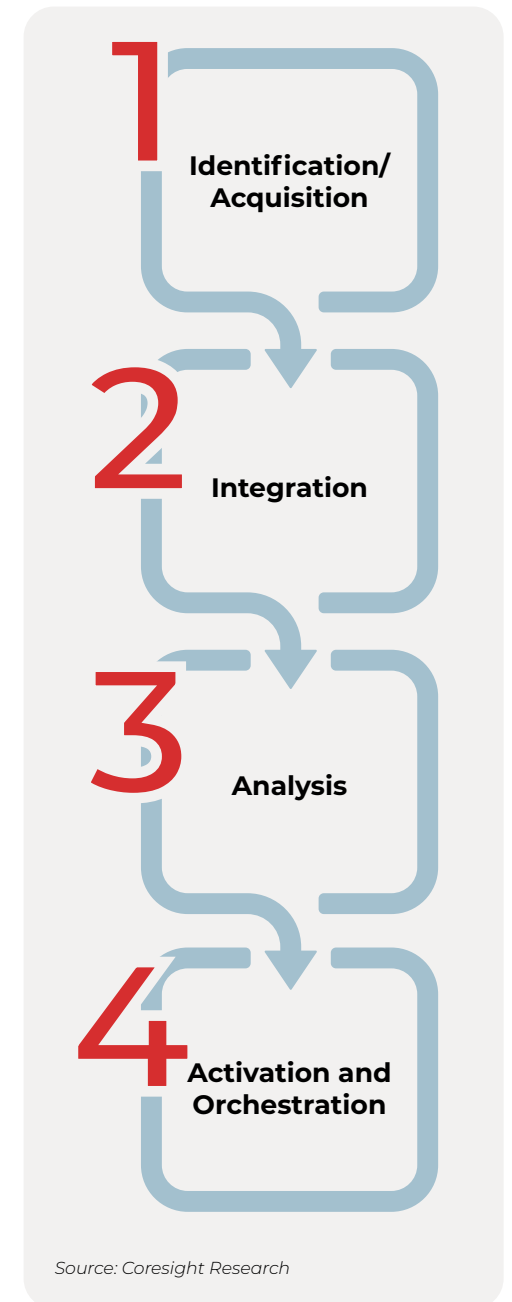
AI/ML can be used to personalize product recommendations online based on available data such as customer information, purchase history, web browsing history and service conversations. GenAI can then be used to compile and enhance those recommendations to better resonate with the shopper—for example, creating looks and outfits. (This technology is applicable to the store, too, offering personalization via mobile devices.)

CDPs offer a meaningful step toward enabling personalization. To offer personalization, the CDP must identify the person. It first performs a key function—identity resolution: piecing together the data "crumbs" that consumers leave behind across a variety of hardware and software platforms when they believe that they are staying anonymous or are in just too much of a hurry to log in or enter their personal information. Once individuals have been identified, this information can be used for segmentation, targeting and marketing analytics. CDPs perform a variety of tasks in the marketing process, as shown in Figure 4.

Looking ahead, marketers can combine virtually unbounded computing power to analyze data to define ever-smaller customer segments, ultimately arriving at a segment of one person. Yet, composing personalized communications such as emails, websites and text messages is not scalable and would, therefore, be impossible to accomplish for a single employee. GenAI is able to incorporate data such as purchase history, browsing history, website activity and service conversations to create personalized communications in the form of text and media (such as audio, images and video), ultimately creating communications that do not sound computer-generated. In addition to messages, these communications can include personalized webpages—complete with copy and images—product recommendations and product discussions. Thus, the combination of computing power and GenAI could finally accomplish the long-sought goal of personalization at scale.

- **Read More on This Trend**: *Customer Data Platforms: Unearthing Buried Treasure in Unified Shopper Profiles*

Figure 4. Key Functional Areas of CDPs

1 Identification/ Acquisition

2 Integration

3 Analysis

4 Activation and Orchestration

Source: Coresight Research

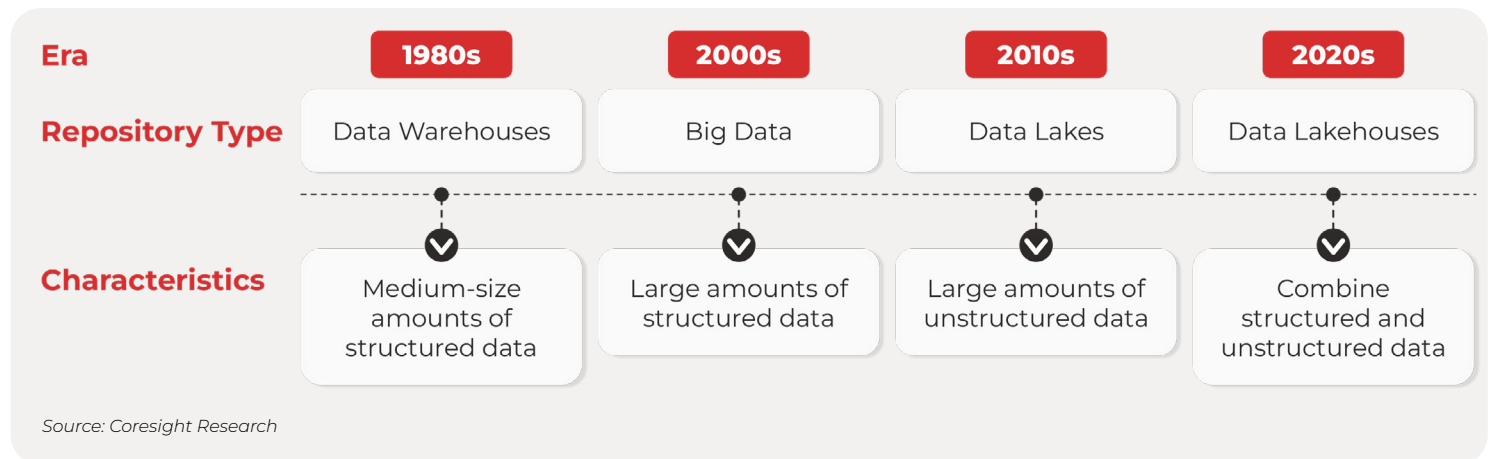**7** | *Democratize Data Access & Analysis*

Discussion

In the past, data remained within its respective department: sales data was managed by sales, financial data remained within the finance department, customer data remained within the marketing department, and so on. An analysis of departmental data required a request to a data-science team or programming knowledge to create a data dashboard, which required a great deal of planning and effort, limiting creativity and serendipity.

GenAI democratizes access to data, as its interface is in natural human language, i.e., humans can ask questions that pertain to an enterprise's data with no programming ability required. Thus, data analysis moves out of the hands of data scientists into the hands of anyone and everyone in an enterprise. Moreover, GenAI makes data analysis faster and more interactive, meaning that executives can quickly receive answers to their follow-up questions.

Questions that GenAI can answer include metrics and goals, such as "how do I increase sales?" When asked this, the LLM parses through data to identify the key relationships and levers that drive sales. GenAI becomes even more powerful when it is combined with the expert forecasting capabilities of AI/ML, which together can provide a view of the past as well as a possible future. These goals can then be executed by AI agents (discussed in more detail in the next section of this report).

While GenAI can work with unstructured data, such as text, audio and video, it really shines when working with clean, well-organized data, such as data contained in a data lakehouse, which organizes the storage of both structured and unstructured data in a format that is ideal for AI (see Figure 5).

Figure 5. Timeline of Evolution of Data Repositories

Era	1980s	2000s	2010s	2020s
Repository Type	Data Warehouses	Big Data	Data Lakes	Data Lakehouses
Characteristics	Medium-size amounts of structured data	Large amounts of structured data	Large amounts of unstructured data	Combine structured and unstructured data

Source: Coresight Research

- **Read More on This Trend:** *AI and Unified Data: Empowering Next-Generation Product and Shopper Intelligence*

What to Know Now

Often, enterprise data is siloed and unstructured.

What's Important in 2025

GenAI enables everyone in an enterprise to access data stranded in siloes and in unstructured formats via natural language.

8 | *Agentic AI Is Here*

What to Know Now

Several major enterprise software providers have announced the availability of AI agents, as well as the tools required for creating them.

What's Important in 2025

AI agents are likely to see mainstream deployment in 2025 and beyond.
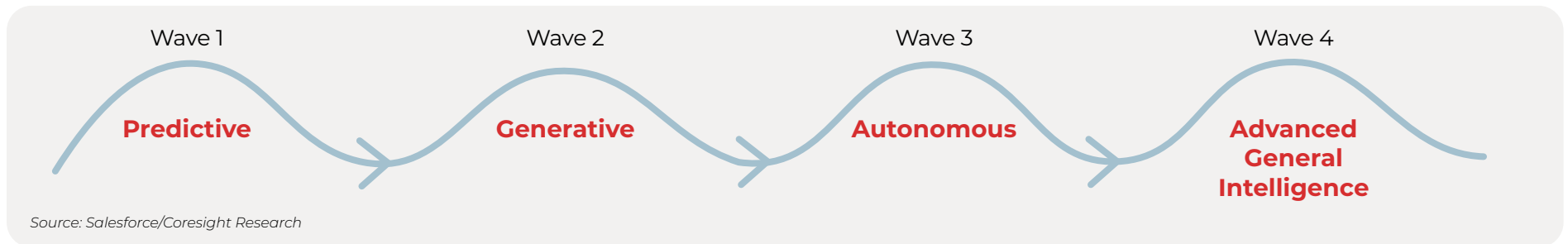
Discussion

2025 will be the year of the rise of AI agents, and their use will likely flourish in 2025 as users begin to build their own agents.

AI agents represent the third wave in the commonly espoused view of the waves of AI development. The first wave is predictive, which is provided by AI/ML. We are currently on the border of the second—generative, in which AI can create media, synthetic data and computer code—and third waves. In the third wave, AI will be able to power agents that operate on our behalf and even communicate with other agents. In the speculative fourth wave, computers would gain human-like powers of intelligence and reasoning (see Figure 6).

Fortunately, the new generation of agents does not require a step-up in computing power: AI PCs equipped with AI acceleration are able to operate agents effectively, and they can greatly benefit the in-store applications mentioned earlier in this report.

Figure 6. Waves of AI Development

Wave 1	Wave 2	Wave 3	Wave 4
Predictive	**Generative**	**Autonomous**	**Advanced General Intelligence**

Source: Salesforce/Coresight Research

Salesforce was one of the first enterprise software companies to anticipate and announce AI agents. The company amplified the agent buzz by renaming its annual September "Dreamforce" conference as "Agentforce," reinforcing the importance of agents. Agentforce is also the name of Salesforce's platform that embodies its vision of AI agents: In addition to providing prebuilt agents for the company's sales, marketing, commerce and other cloud platforms, Agentforce also includes tools for users to create their own agents. Other cloud software vendors that have made their own agent announcements include Google Cloud, Snowflake and Workday, among others.

There is a great deal of utility to be realized from agents, first on the enterprise level and later on the consumer level, as agents automatically handle routine business tasks and personal tasks.

- **Read More on This Trend**: *The Future of AI in Retail: What Technology Could Make Possible by 2030*

What to Know Now

GenAI can acquire unstructured data from the entire supply chain and manage unplanned supply chain events.

What's Important in 2025

AI agents will increasingly handle non-urgent issues in supply chains in 2025 and beyond.

Discussion

Supply chains contain a heterogeneous collection of manufacturers, intermediaries, service providers, and a potentially diverse number of products, which are often produced across the globe—together, these factors make data collection and communication a significant challenge.

The concept of an interconnected supply chain—one running on a base of shared data, as depicted in Figure 7 on the right—remains an ideal worth pursuing; however, in the meantime, the world remains a chaotic place. Still, retailers and brands require data on an item's status and location from disparate nodes across the supply chain, in as near to real time as possible, in order to make important business decisions that affect inventory assortment and allocation, which are key to customer sentiment.

There are multiple powerful supply chain management and analysis platforms, which have typically been the product of writing and perfecting computer code and designing dashboards; however, consumer preferences change by the minute, and the world is an unpredictable, dynamic place, constantly reducing the accuracy and relevance of these traditional methods.

As mentioned in other sections of this report, GenAI enables the ad hoc analysis of structured and unstructured data, which is particularly important in regard to supply chains as data from overseas suppliers is unlikely to be clean and formatted.

AI/ML can triage emerging supply chain issues, automatically handling non-urgent issues and alerting operators about issues that require human intervention. GenAI's analytical and generative abilities enable it to adapt to unplanned or emerging situations quickly without the need for additional programming.

- **Read More on This Trend**: All our coverage of supply chain and GenAI in retail.

Figure 7. The Continuous, Interconnected Product-Management Cycle of the Future
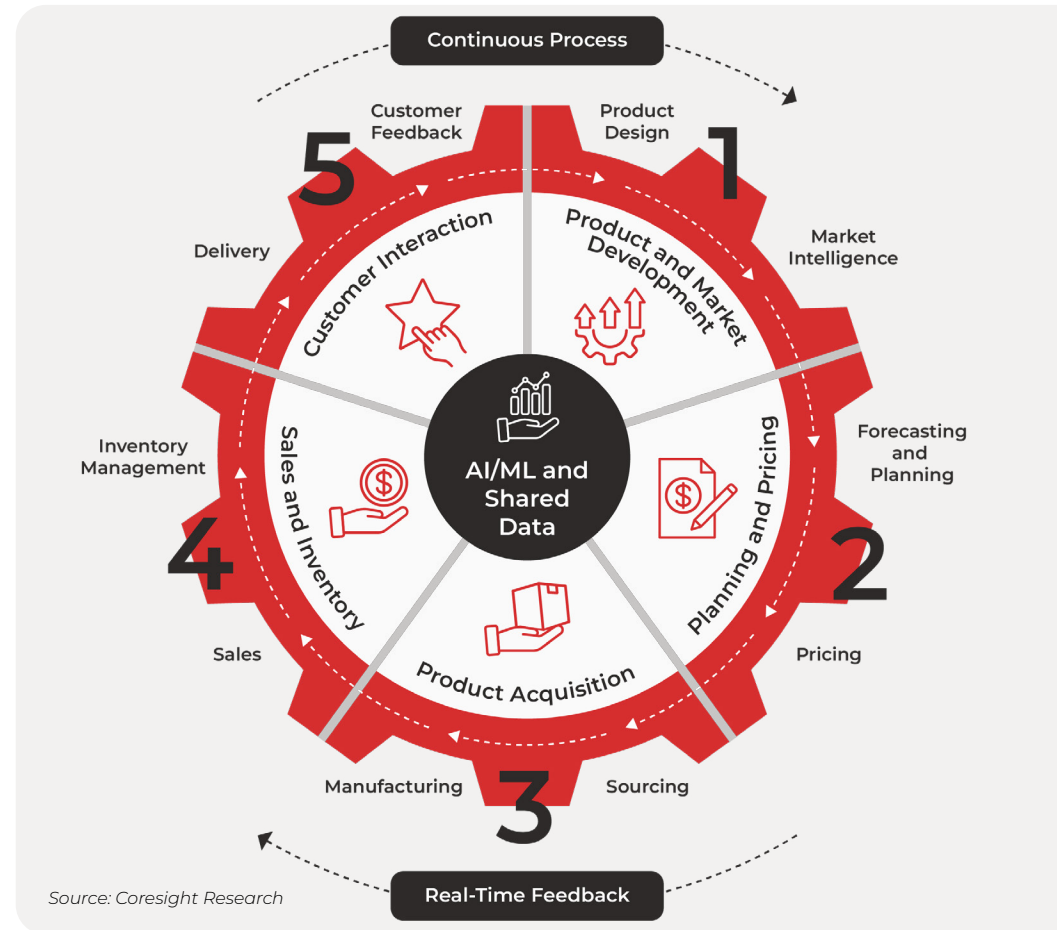
Source: Coresight Research

What to Know Now

Advanced demand forecasting tools leverage ML and external data to create highly accurate forecasts.

What's Important in 2025

GenAI offers the ability to incorporate unstructured data to improve forecasts and to query forecasts using natural language.

There are also several levels of demand forecasting, depending on the specific application—in Figure 9, we illustrate the levels of demand forecasting sophistication. ML-based forecasting is about 50% accurate, according to industry experts, and incorporating external data, such as the weather and local calendars, can raise its accuracy to more than 90%; adding other external data, such as demand signals from social media, can increase the accuracy of demand forecasting even further. Certain demand forecasts require additional constraints and levels of optimization; for instance, when forecasting demand for fresh food in grocery, forecasts require constraints in order to manage spoilage and reduce food waste.
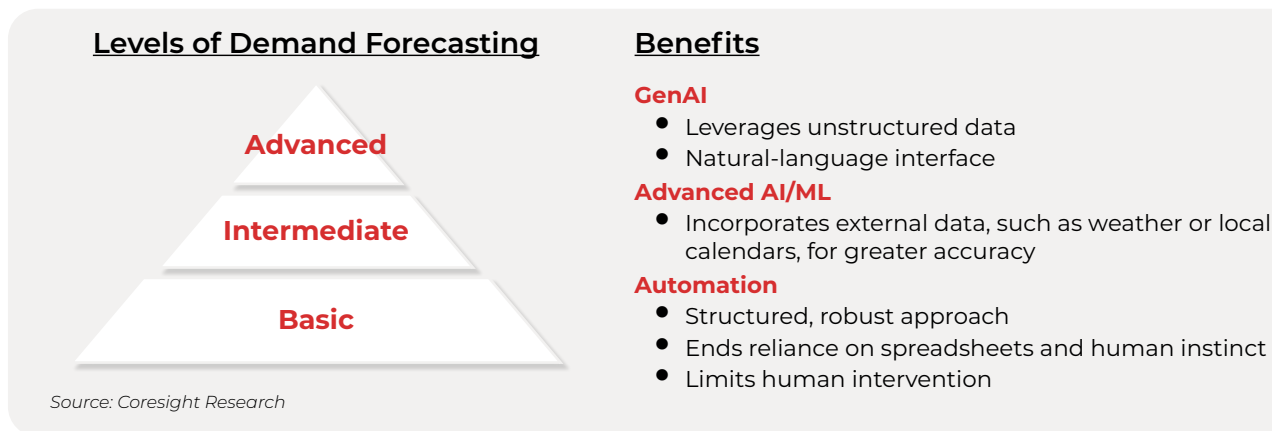
Discussion

Demand forecasting plays a central role in a retailer's operations—going beyond just planning—as the results from a demand forecast determine the function and limits of other operations, such as sales and inventory operations, as illustrated in Figure 8.

Figure 8. Information Flows Linking Demand Forecasting, Operations and Outcomes

Source: Coresight Research

Figure 9. Increasingly Advanced Levels of Demand Forecasting with Expected Benefits

Levels of Demand Forecasting

Advanced

Intermediate

Basic

Benefits

GenAI
- Leverages unstructured data
- Natural-language interface

Advanced AI/ML
- Incorporates external data, such as weather or local calendars, for greater accuracy

Automation
- Structured, robust approach
- Ends reliance on spreadsheets and human instinct
- Limits human intervention

Source: Coresight Research

As discussed in other sections of this report, the advent of GenAI offers innovative, new methods of obtaining and analyzing data, as well as presenting it, which extends to demand forecasting processes.

- **Read More on This Trend**: *Retail-Tech Landscape: Demand Forecasting*

What We Think

Retailers and brands are currently in the enviable position of having several powerful technologies to choose from to make their businesses more productive and efficient, as well as to entrench themselves with their customers. AI appears practically everywhere throughout our list of retail technology trends, from computer vision and visual shopping and search to data analysis and personalization. Building on this potential, GenAI promises to bring the power of AI to everyone, and, though in the early stages of development, AI agents will be able to act on our behalf, bringing even more productivity gains and new capabilities to the masses.

Implications for Brands/Retailers

- Retailers need to consider bringing some computing capabilities back to the premises, or the edge, to enable CV and many AI functions inside of their stores.

- The confluence of CV, voice recognition and AI will offer new opportunities for retailers and brands to market their products.

- GenAI enables personalization at scale, and savvy retailers and brands should look to capitalize on this.

- GenAI brings with it many new, flexible ways to analyze enterprise data and communicate its results.

- AI agents are an exciting new technology that can offer new capabilities and productivity gains and can effectively run on cost-effective systems with integrated AI acceleration.

Brands or Retailers Poised To Gain Advantage

- Walmart's size and scale as the world's largest retailer has enabled it to demonstrate multiple successful AI deployments, including an intelligent shopping assistant, a company knowledge base for employees and a cashier-free Sam's Club that uses CV to verify purchases.

- Retailers that use AI- and CV-powered robots for inventory scanning and data collection, such as Simbe, experience fewer out-of-stock items and fewer price and promotion errors.

- Retailers that have supplied their associates with handheld mobile devices, including Office Depot and Walgreens, see improved inventory visibility, order accuracy and worker productivity, as well as enhanced customer experiences.

- Various retailers, including BJ's Wholesale Club, have increased revenue by using AI-powered pricing applications.

Brands or Retailers That Risk Losing Advantage

- Retailers and brands that continue to use Excel or human intuition for demand forecasting will see lower accuracy compared to those that use AI/ML-based forecasting tools. Additionally, companies that use forecasting tools with GenAI interfaces will be able to quickly identify new insights and opportunities.

- Retailers who lag in equipping associates with their own mobile devices will lose out on the additional productivity and employee satisfaction they provide, reducing their employees' ability to upsell and provide excellent customer service.

- Retailers and brands sending generic e-mail blasts to customers and not providing personalized webpages, communications or product recommendations will risk having their customers leave to companies that offer greater personalization.

- Retailers performing inventory and planogram checks in an unautomated fashion risk stock-outs, a lack of planogram compliance and the loss of workers due to tedious assignments.

Implications for Technology Vendors

- CV leverages computing power and AI to perform many powerful functions in the retail store, including functions centered around inventory, customer behavior and data collection.

- Enterprises can benefit from tools developed to process siloed and unstructured data, while GenAI enables employees to perform many functions previously only performed by data scientists.

- GenAI models and applications—as well as AI agents— are in their early stages, offering companies many new opportunities, business models and openings to leapfrog competitors.

Impacts from AI

- AI is a core technology enabling many retail operations, including demand forecasting, personalization, communication and CV, among many others.

- Many retailers have successfully deployed GenAI via applications such as intelligent chatbots, company knowledge bases and product description and image creators, as well as various custom applications.

- AI agents and design tools are becoming increasingly available; these offerings can provide a new level of capabilities and productivity enhancements to companies across the retail space.

Notes

Data in this report are as of January 2, 2025.

Companies mentioned in this report are: Advanced Micro Devices (NasdaqGS: AMD), Alphabet Inc. (parent company of Google; NasdaqGS: GOOGL), Amazon (NasdaqGS: AMZN), Apple (NasdaqGS: AAPL), Avery Dennison Corporation (NYSE: AVY), BJ's Wholesale Club Holdings (NYSE: BJ), GK Software/Fujitsu Limited (TSE: 6702), Grabango, Hewlett Packard Enterprise Company (NYSE: HPE), HP Inc. (NYSE: HPQ), Intel Corporation (NasdaqGS: INTC), Instacart/Maplebear (NasdaqGS: CART), Kroger (NYSE: KR), Nvidia Corporation (NasdaqGS: NVDA), Rockbot, Samsung Electronics (KOSE: A005930), Shopic, Snowflake (NYSE: SNOW), SpartanNash Company (NasdaqGS: SPTN), Super Micro Computer (NasdaqGS: SMCI), The ODP Corporation (parent company of Office Depot; NasdaqGS: ODP), Trax Retail, Trigo, VusionGroup (ENXTPA: VU), Walgreens Boots Alliance (NasdaqGS: WBA), Walmart (NYSE: WMT), Workday (NasdaqGS: WDAY), Zebra Technologies (NasdaqGS: ZBRA)

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