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BUSINESS

# Retail Technology Trends for 2025 and Beyond



# A Changing Retail Landscape

In 2025, the retail industry will blend innovation with tradition, merging fast-evolving e-commerce capabilities with the enduring strength of brick-and-mortar. With digital touchpoints proliferating both online and in-store, retailers will be focused on creating increasingly dynamic, connected experiences for customers and employees alike.

Many of these technologies are embodied by what has come to be known as the Store of the Future: retail environments that blend the physical and the digital, combining advanced customer-facing solutions to enhance the experience with backend technology to optimize operations.

Even after years of e-commerce innovation, the allure of in-person shopping remains strong. In fact, Forrester predicts that [by the end of the decade](#), only about three in 10 purchases will be made online—the rest will still take place in physical stores. That in-store shopping experience, however, will keep pace with its digital counterpart as retailers reimagine store environments as elements of the wider omnichannel shopping experience.

Consumer expectations are the primary catalysts for this transformation. Today's consumers are not just buyers; they are informed participants seeking convenience, speed, and, most importantly, personalization in their shopping experiences. This shift in consumer behavior is driving retailers to innovate. They are increasingly leveraging cutting-edge technology in data analytics, artificial intelligence (AI), the Internet of Things (IoT), payments, and more to not only meet but anticipate customer needs, thereby enhancing engagement and driving revenue growth.

The retail industry is also adapting to changes in supply chains with improved resiliency and visibility. By using data analytics to optimize sourcing and make on-the-fly adjustments, while using IoT and real-time location monitoring technology to track items, retailers are able to better forecast, ensure product availability, reduce manual tasks, and improve customer and employee experiences.

At the same time, a new slate of cybersecurity threats, bolstered by AI, poses significant risks to retailers and the customer data they possess. In turn, retail leaders are boosting their investments in cybersecurity—[by more than 10% by 2025](#)—to counteract those threats. They're also focused on comprehensive, layered cybersecurity approaches that combine firewall and perimeter defense with robust real-time monitoring and response, as well as workforce training.

All of these efforts depend on the lifeblood of connectivity. The retailers leading the way are taking a strategic approach when it comes to planning, building, and optimizing network architectures to support technology applications today and in the future.

**In this report, we'll examine how cutting-edge experiences and technology innovation are redefining the retail industry from end to end.**



# The Impact of AI and Machine Learning

The most hyped emerging technology across industries, artificial intelligence has unsurprisingly found a foothold in retail. Investments in AI, machine learning (ML), and natural language processing (NLP) are accelerating. The explosion of generative AI in particular has taken retail by storm, with [IDC predicting](#) that by 2027 40% of retailers will use generative AI to create and deliver dynamic content—a move that will boost conversion rates and cut content management costs by 30%.

## Hyper-Personalized Shopping Experiences through AI

AI has brought about a paradigm shift in how customers interact with retailers. Retailers use these technologies to analyze vast amounts of consumer data, providing instant insights into shopping habits, preferences, behaviors, and next recommended action, which can also be automated. Thus, AI enables the creation of hyper-personalized experiences, where product recommendations and marketing messages are tailored to individual consumers. This level of personalization not only enhances the customer experience but also drives higher conversion rates and customer loyalty. In fact, AI will even allow store managers to dive deep on localized trends. [IDC predicts](#) that by 2027, more than 45% of major retailers will use AI and data to hyper-localize for store-specific planning, selection, allocation, and replenishment.

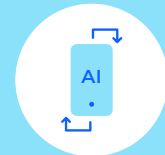
As retailers expand their use of generative AI, however, it's crucial that they do so with an eye towards transparency and accuracy. A [Bain & Company survey of retail customers](#) on impressions of generative AI found that the biggest negative impacts to user experience came from obvious errors (57% of respondents) and inaccurate product information (56%). Even still, about half of respondents said that generative AI had significant or transformative potential in retail.

<sup>1</sup> IDC FutureScape: *Worldwide Retail 2025 Predictions*

<sup>2</sup> Bain & Company, *Generative AI's Potential to Improve Customer Experience*

**40%**  
OF RETAILERS

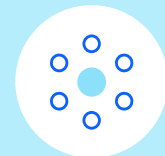
will use generative AI to create and deliver dynamic content to consumers by 2027.<sup>1</sup>



**41%**

OF CUSTOMERS

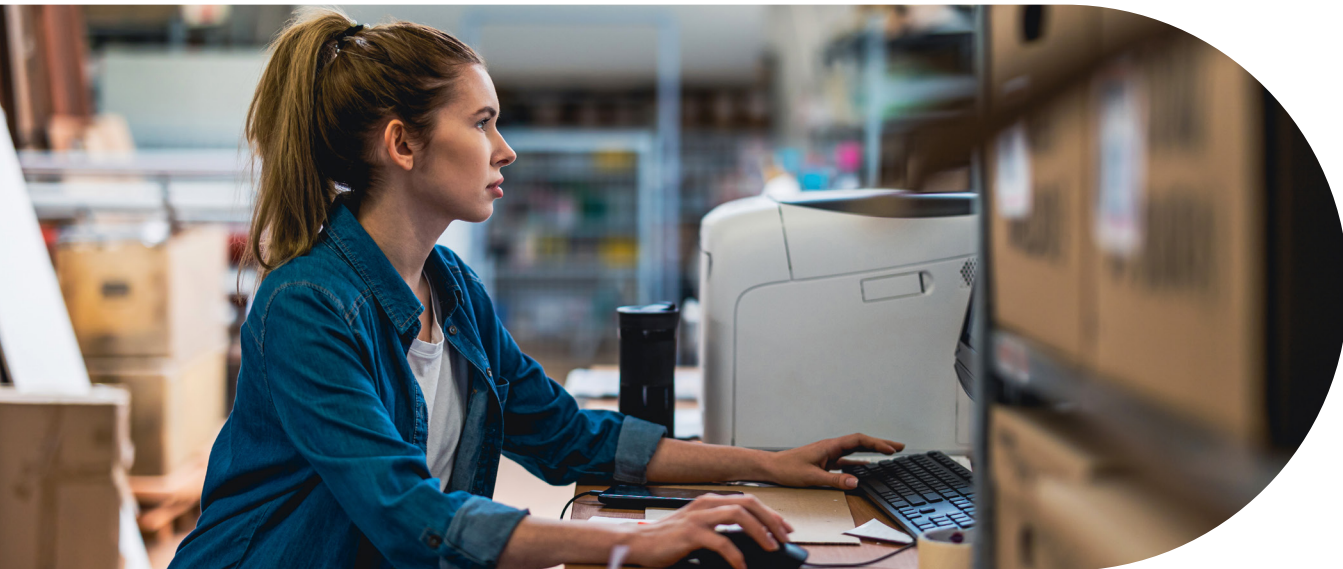
say they feel comfortable using a generative AI tool from a brand they trust.<sup>2</sup>



## AI in the Supply Chain

In inventory management and supply chain operations, ML algorithms predict demand patterns, optimize stock levels, and streamline logistics. This predictive capability helps in reducing overstocking or stockouts, thereby minimizing costs and waste. Retail leaders also use AI for store layout optimization, pricing strategies, and detecting fraudulent activities, thus making operations more efficient and secure.

Retailers and suppliers are also tapping into AI to solve old challenges on a new scale, like the “traveling salesman” problem—that is, looking at how routes and sourcing can be optimized to shorten distances and improve efficiency. This approach can also improve supply chain resilience while also reducing costs, delivery times, and waste, contributing to a more sustainable retail environment.



## AI as a Means to Enhance Employee Experience

Beyond its pivotal role in customer engagement and supply chain optimization, AI is expected to be equally transformative in elevating the employee experience in retail. AI-driven tools empower staff with actionable insights, freeing them from routine tasks to focus on higher-value activities. For instance, AI can assist in inventory management, enabling employees to maintain optimal stock levels efficiently. Moreover, AI-powered analytics can provide staff with real-time information about customer preferences and behaviors, aiding in personalized service as well as inventory availability queries. This not only enhances job satisfaction by reducing manual workload but also enables employees to engage more meaningfully with customers, fostering a more dynamic and fulfilling work environment.

# Operational Innovation Through IoT

The Store of the Future is a completely connected one, from the back office, to the items on the shelves, and even the shelves themselves. The retail sector is no stranger to the Internet of Things, but while the technology achieves new levels of maturity and ubiquity, the greenfield possibilities for future innovation remain exciting. By leveraging connected devices and sensors to gather and analyze data in real-time, retailers are finding new ways to enhance customer and employee experiences while streamlining operations. That manifests itself via shelves that indicate—and even automatically reorder goods—when they are empty, or facilities monitoring sensors to flag when repairs are needed, or even occupancy sensors to help gauge foot traffic through stores and optimize in-store flow. The wider implementation of IoT in retail settings marks a significant leap towards a more efficient, customer-centric, and data-driven industry. At the same time, the richness and volume of the data being processed requires fast, and reliable connectivity solutions to deliver on the promise of IoT solutions.

## Real-Time In-Store Analytics Using IoT

IoT technology in retail is playing a role in understanding and enhancing the in-store customer journey. Through sensors and connected devices, retailers can track customer foot traffic, monitor interactions with products, and gather valuable insights to optimize store layouts. Smart shelves, equipped with weight sensors and Radio Frequency Identification (RFID) tags, offer real-time inventory tracking and alerts for restocking, ensuring products are always available when customers need them.

## Smart Inventory Management Through IoT Solutions

IoT is also transforming inventory management with its ability to provide real-time updates on stock levels, automated reordering, and efficient warehousing. For example, smart warehouses utilize IoT to locate items swiftly, and improve overall efficiency. IoT sensors in supply chain management enable real-time tracking of products, ensuring they arrive on time and in good condition.



## Impact on Operational Efficiency and Customer Experience

IoT technologies are significantly enhancing operational efficiency in retail. From reducing energy consumption through smart environmental controls to enabling automated checkout systems, IoT is expected to help manage costs and waste reduction. Furthermore, IoT provides retailers with comprehensive data analytics, enabling them to make informed decisions about product placement, marketing strategies, personalization, and customer engagement. Enhanced customer experiences are achieved through improved store navigation, making shopping more convenient and enjoyable for consumers.

From an employee experience perspective, IoT connectivity can be used to meaningfully reduce manual tasks. Electronic price labels on shelves, for example, can automatically update without employee intervention. Remote issue detection can preclude hourly restroom checks for cleanliness, leaving employees more available to serve customers.

## Enhancing Efficiency and Customer Experience with Real-Time Location Systems

Real-time location systems (RTLS) are increasingly utilized in retail environments, serving as vital tools for tracking products, assets, and customer movements. These systems, encompassing technologies like smart shelves and RFID tags, enable retailers to manage inventory with better accuracy and efficiency.



# The Evolution of Payment Technologies in Retail

## The Shift to Frictionless and Secure Checkout

One of the most visible changes in retail comes through the lightning-fast adoption of touchless and frictionless checkout systems, emphasizing both convenience and security. This evolution is marked by the adoption of cutting-edge technologies like biometric payments, self-checkout systems, and “just walk out” technologies. These innovations are streamlining the checkout process, helping to eliminate long queues, and enhancing the overall shopping experience. Biometric payments, using fingerprints or facial recognition, are gaining popularity for their ease of use. Self-checkout systems and “just walk out” technologies, like those [pioneered by Amazon Go](#), offer customers the convenience of shopping without the traditional checkout process, as items are automatically charged to their accounts upon exiting the store.

## Innovations in Payment Technology

The landscape of payment technology is continuously evolving with the introduction of various types of digital payments and AI-driven fraud detection systems. While BNPL (buy now pay later) offerings may not be as popular as a few years ago, retailers are experimenting with biometric-based payments. AI-driven fraud detection systems, on the other hand, leverage machine learning algorithms to identify and help prevent fraudulent activities in real-time. At the same time, retailers are increasingly implementing technology like computer vision to enhance self-checkout systems, cut theft, and improve services like curbside pick-up. Finally, tablets, remote point-of-sale systems, and even wearables are becoming more ubiquitous in retail to facilitate and process purchases—and retailers are preparing accordingly.



## Safeguarding a Changing Retail Environment

Retail's evolving digital environment brings with it a range of security challenges. Retailers operate in a world where every transaction, whether at the checkout or online, represents an opportunity for both growth and risk—and common attacks like ransomware are growing in sophistication and volume. Retail leaders are responding through strategic investment. [IDC predicts that this year](#), retailers will increase their security IT spend by 10% to counteract a new wave of sophisticated cybersecurity threats.

## Complexities and New Vulnerabilities

Retailers manage substantial amounts of customer and transaction data, which creates a greater need for vigilance. As more systems connect across POS terminals, mobile apps, and cloud platforms, the attack surface continues to expand.

And while AI supports everything from customer insights to real-time inventory, it also brings unique security concerns. AI systems need access to considerable data, which, if exposed, could compromise both retailer and customer privacy. Additionally, AI can be a target itself, as attackers look for ways to manipulate systems that aren't well-secured. This underscores the importance of staying proactive in monitoring and updating AI-based tools.

## Pressing Cyber Threats for Retail

Certain types of cyber threats continue to impact retail heavily due to the way retail businesses operate and manage data:

- **Ransomware:** Retail data is valuable, making ransomware a prevalent risk—in fact, *over 50% of retailers* say they've been impacted by a ransomware attack in the last year. Such attacks can disrupt operations and, if customer data is breached, impact brand loyalty. Rapid detection and response can lessen these risks, but vigilance is key.
- **Social engineering and phishing:** Employees are often targeted to gain access to sensitive systems. Training staff to recognize and report phishing attempts can significantly reduce these types of breaches.
- **IoT vulnerabilities:** Retail environments are growing more distributed. If they aren't configured or updated correctly, connected devices like smart shelves or RFID systems can open new pathways for cyber threats. Retailers are increasingly focusing on securing these endpoints to prevent potential intrusions.

## Key Strategies for Securing Retail Systems

To address today's cyber threats, many retailers are adopting a layered security approach. This strategy uses multiple types of safeguards to reduce the risk of any single vulnerability leading to a serious breach. Effective defenses often include advanced firewalls and intrusion detection systems alongside regular training that helps employees spot and respond to threats. Stronger authentication practices, such as multi-factor authentication, add another layer of security for access to critical systems.

Many retailers also employ continuous monitoring to detect suspicious activity across all devices on their network. Managed Detection and Response services can support retailers with 24/7 oversight and skilled threat response, which helps contain potential breaches quickly. By layering these defenses, retailers build greater resilience against a complex array of cyber risks, protecting both customer data and daily operations.

<sup>3</sup> IDC FutureScape: *Worldwide Retail 2025 Predictions*

<sup>4</sup> IDC, *Future Enterprise Resiliency and Spending Survey: A Summary View into IT and Network Management Drivers and Direction*

60%  
OF RETAILERS

expect to increase  
cybersecurity  
in 2025.<sup>3</sup>



OVER  
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# Blending Physical and Digital Retail with Immersive Technologies

The lines between digital and brick-and-mortar selling environments continue to blur, as retailers try to infuse more digitally enabled experience into in-store environments, while bringing the human connection that defines in-store shopping to the online realm. The end result? An increasing “phygital” shopping experience that leverages emerging technologies like Augmented Reality (AR) and Virtual Reality (VR) alongside new engagement techniques like livestream shopping and virtual clienteling to reshape the way consumers interact with brands and products.

## Elevating Retail Experiences Through AR and VR

Some products are best evaluated in context. You might want to see how a sofa would look in your living room, or how a suit jacket would look with a certain pair of pants you own. Enter AR and VR. By overlaying digital imagery in the real world via AR or diving into a digital world via VR, these technologies are fundamentally changing how customers experience shopping. Imagine an in-store mirror that lets you “try on” new looks—and instantly share them with your friends. Virtual try-ons and interactive product demonstrations are not just gimmicks; they represent a significant shift towards creating truly immersive retail environments.

## Personalized Retail Engagement through Livestream Shopping and Virtual Clienteling

The rapid rise of livestream shopping marks a significant evolution in customer engagement. Live shoppable videos, hosted on social media or a brand’s own website, led by brand representatives and retail associates create moment-in-time events, fostering community and building affinity. The experience blends entertainment with commerce, creating a dynamic where customers can interact with products in real time, ask questions, and make purchases directly through live streams. Store associates are becoming brand influencers, utilizing their deep product knowledge and trustworthiness to forge stronger, more personal connections with customers—and with their employer. This approach is especially beneficial as it brings authenticity and expertise to the forefront of customer engagement.

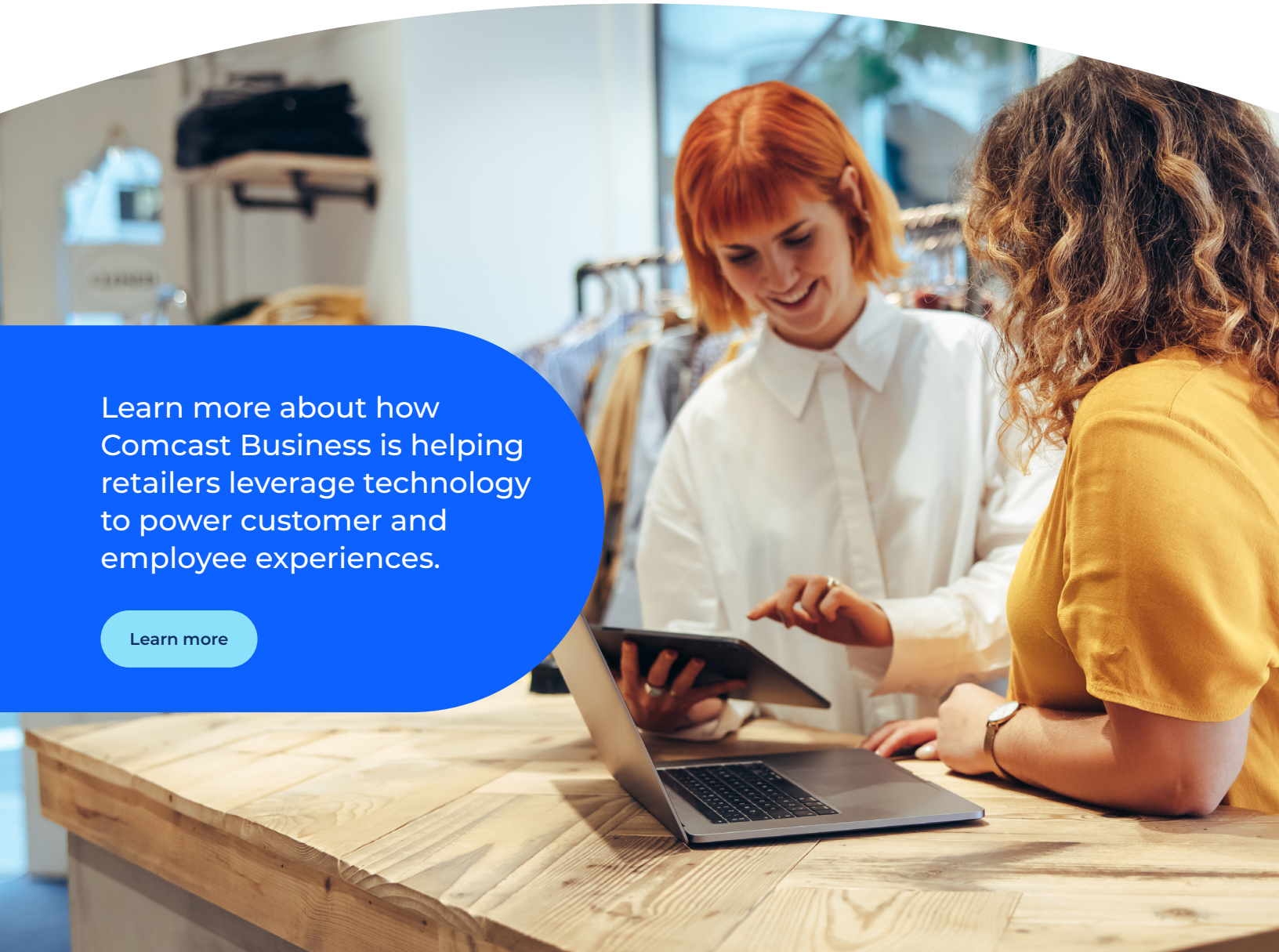
Virtual clienteling, meanwhile, blends traditional clienteling—highly personalized, one-to-one sales relationship building seen primarily in luxury retail—with modern digital tools. It replicates the personal touch of in-store experiences online, utilizing detailed client data along with digital communication platforms like AI chatbots, live and video chats, social messaging, and co-browsing. Key to virtual clienteling is maintaining the one-to-one connection that characterizes traditional clienteling, but in a digital context. This method combines in-depth customer data with omnichannel communication to cultivate and sustain personal relationships with consumers. It enhances customer support and fosters brand loyalty, leading to higher conversion rates. It enables sales associates, who may even be engaging from physical stores, to connect with online customers in a manner that feels personal and direct, deepening customer connections through this digital yet intimate approach.



# Envisioning the Future of Retail Beyond 2025

The journey of retail is not a linear path but an evolving landscape marked by innovation and transformation. Retailers must not only keep pace but also anticipate and shape future trends, leveraging cutting edge technology to enhance experience and streamline operations— as well as advanced networking and connectivity to enable the delivery of these technologies across channels.

It is not just about adapting to change but about becoming architects of the retail future. By prioritizing innovation, transformation, and reliable connectivity, retailers aren't just preparing for the challenges of tomorrow; they are actively forging a new and exciting retail reality. In this dynamic landscape, the convergence of customer and employee experiences, powered by cutting-edge technology, will help drive unprecedented growth and opportunities.

A photograph showing two women in a retail environment. One woman with red hair, wearing a white collared shirt, is pointing at a tablet held by the other woman with curly brown hair, who is wearing a yellow top. They are standing behind a wooden counter with a laptop open on it. The background shows clothing racks and store fixtures.

Learn more about how Comcast Business is helping retailers leverage technology to power customer and employee experiences.

[Learn more](#)