



FROM DATA TO DECISIONS: NRF 2026 AND THE FUTURE OF AUTOMATED RETAIL

At the National Retail Federation's Big Show 2026 in New York City, Honeywell spotlighted "Unleash Dynamic Commerce," urging retailers to drive real-time data, automation, and AI for seamless, personalized experiences.

Honeywell

FROM AI PLATFORMS TO CONNECTED ECOSYSTEMS: KEY RETAIL TRANSFORMATIONS

Rather than isolated technologies, NRF 2026 trends cluster around three strategic shifts.

AI-FIRST RETAIL PLATFORMS:

For retail technology providers, the opportunity lies in delivering AI that works seamlessly with edge devices, sensors, and [data capture solutions](#); where decisions happen.

AI-first retail platforms mark a pivotal evolution in retail, introducing intelligent systems that proactively manage and optimize every facet of the customer journey—from purchase transactions to logistics and personalized experiences. These platforms leverage sophisticated machine learning, predictive analytics, and natural language processing to automate routine operations, anticipate demand, and customize customer engagement. For instance, generative AI-driven virtual assistants can support shoppers with tailored product recommendations, while advanced analytics continually monitor inventory, identify emerging trends, and automate restocking processes. By harnessing these technologies, retailers realize greater precision, operational resilience, and the capacity to deliver personalized experiences at scale.

Technology providers have a unique opportunity to innovate by delivering AI solutions that integrate seamlessly with edge devices, sensors, and automated data capture systems—enabling fast, data-driven decisions wherever they are needed within the retail ecosystem.

In conclusion, the adoption of AI-first platforms is not just a competitive

advantage but a necessity for retailers aiming to thrive in the current and future marketplace. By embracing intelligent automation and real-time data, retailers can unlock new levels of agility, resilience, and customer satisfaction, positioning themselves to succeed in an increasingly dynamic market.

UNIFIED, CONNECTED RETAIL ECOSYSTEMS:

This trend breaks down traditional silos, enabling seamless data flow across the entire retail enterprise. Technology plays a crucial role through the adoption of cloud-based platforms, APIs, and data integration tools that connect point-of-sale systems, e-commerce platforms, mobile apps, and social channels.

With unified commerce solutions, retailers can offer consistent experiences regardless of channel, customers can browse online, purchase via mobile, and pick up in-store without friction. Real-time data sharing across departments empowers teams to respond quickly to customer needs, optimize pricing, and manage promotions. Social commerce integrations further extend reach, allowing retailers to engage audiences on platforms like TikTok and Instagram and convert them directly into buyers.

As e-commerce growth stabilizes, retailers are refocusing on the physical store as a critical performance engine. Improving store productivity, inventory visibility, and labor efficiency is now

essential to protecting margins and customer experience.

OPERATIONAL AGILITY & RESILIENCE:

To thrive in an unpredictable market, retailers must be agile and resilient. Automation technologies such as IoT sensors, RFID tagging, and process automation help streamline operations and provide real-time visibility into stock levels, supply chain disruptions, and changing consumer preferences. AI-powered decisioning platforms analyze vast amounts of data to anticipate demand shifts, optimize staffing, and mitigate risks.

For instance, predictive analytics can forecast sales trends and automatically adjust inventory allocations, while cloud-based dashboards enable managers to monitor performance and respond instantly to unexpected events. Together, these technologies empower retailers to adapt quickly, maintain continuity, and deliver reliable service even in times of volatility.

Retailers at NRF 2026 consistently emphasized the need for [flexible and scalable automation](#). Fixed, one-size-fits-all systems are giving way to modular solutions that can adapt to changing demand, new fulfillment models, and evolving store formats.

THE RISE OF AIDC: TRANSFORMING RETAIL WORKFLOWS AND STRATEGY

The Automatic Identification Data Capture (AIDC) industry is rapidly evolving from traditional barcode scanning into intelligent, AI-driven data ecosystems. Publications and announcements around NRF 2026 show AIDC becoming a foundational layer for smart retail operations, customer experience, and omnichannel execution.

1. SMARTER AND MORE INTEGRATED DATA CAPTURING SYSTEMS

AIDC technologies such as barcode scanners and RFID readers are deeply integrated with AI, IoT, and edge computing. Honeywell highlights AI-powered scanning and RFID solutions that support inventory accuracy, loss prevention, and real-time analytics. RFID is increasingly positioned as a core data layer enabling real-time visibility and advanced analytics across retail operations.

2. FROM DATA COLLECTION TO ACTIONABLE INTELLIGENCE

Modern AIDC systems are shifting from passive data capture to active decision support. Cloud-connected platforms allow centralized management of device fleets, performance monitoring, and predictive insights. AI embedded in AIDC workflows enables fraud detection, anomaly recognition, and predictive inventory alerts directly at the point of capture.

AI embedded in AIDC workflows represents a significant advancement in retail operations by transforming raw data capture into intelligent, actionable insights at the moment of transaction. When AI is integrated into systems like barcode scanners, Optical character recognition (OCR) and RFID readers, it does more than simply record product

information—it actively analyzes patterns and behaviors in real time.

For fraud detection, AI algorithms can instantly identify suspicious activities such as miss-scans, ticket switching, or attempts to manipulate product pricing. For example, if a customer tries to scan an item with a mismatched barcode or switches price tags, the AI system can flag the transaction, alert staff, or trigger additional verification steps, thereby reducing shrinkage and financial loss.

Anomaly recognition goes beyond basic fraud prevention by identifying irregularities in inventory movement, sales trends, or customer interactions. If the system detects an unexpected point or drop in sales for a particular item, or unusual patterns in stock depletion, it can prompt further investigation. This helps retailers quickly respond to operational issues, supply chain disruptions, or even potential theft.

Predictive inventory alerts are another major benefit. AI analyzes historical sales data, current stock levels, and external factors such as seasonality or promotional events to forecast future demand. When a product movement is captured, these AI-driven alerts can immediately notify store managers about potential out-of-stock situations, overstock risks, or replenishment needs. This proactive approach ensures shelves are stocked appropriately, enhancing both operational efficiency and customer satisfaction.



3. ENHANCING OPERATIONS AND CUSTOMER EXPERIENCE

AIDC technologies now extend their impact well beyond the traditional point-of-sale, fundamentally transforming workforce effectiveness and retail operations. Smart carts and self-checkout systems equipped with real-time scanning capabilities not only enhance shopper engagement but also provide employees with actionable insights, reducing manual labor and enabling staff to focus on high-value customer service tasks.

The integration of RFID and AI for loss prevention streamlines operational workflows by automating the detection of miss-scans and ticket switching, thus minimizing shrinkage and supporting compliance efforts. Real-time inventory accuracy, powered by AIDC, underpins unified commerce strategies such as buy-online-pickup-in-store (BOPIS) and ship-from-store, allowing for seamless coordination between online and physical channels while optimizing stock allocation and replenishment.

Furthermore, the rich data captured by current technology enhances customer-facing experiences through precise stock visibility and product traceability, while also empowering retail teams to make informed decisions quickly, allocate resources more efficiently, and respond proactively to emerging trends and operational anomalies. By automating routine processes and providing predictive insights, AIDC solutions drive increased productivity, reduce errors, and create a more agile, responsive retail environment.

4. SUMMARY OF EVOLUTIONARY SHIFTS

In a Dynamic Commerce scenario, the evolution from standalone barcode scanners to sophisticated multi-modal data capture solutions: encompassing barcodes, RFID, and sensor technologies integrated with AI platforms; enables retailers to operate with unprecedented agility and responsiveness.

Real-time automation powered by AIDC allows for instant visibility into inventory levels, customer behaviors, and sales trends, driving seamless omnichannel experiences such as buy-online-pickup-in-store (BOPIS) and ship-from-store. Loss prevention is enhanced as AI and machine vision detects fraudulent activities and anomalies instantly, while inventory intelligence ensures that shelves are stocked accurately and replenished proactively.

This integration also empowers retailers to personalize customer interactions, dynamically adjust pricing, and allocate workforce resources efficiently, ultimately optimizing both operational outcomes and the overall customer

experience. By leveraging these capabilities, Dynamic Commerce environments can rapidly adapt to changing market conditions, deliver tailored services, and maintain a competitive edge leveraged in store operations. Resilience is key to get differentiation filling customer demands..

The AIDC industry is transforming into an intelligent sensing network that underpins modern retail. At NRF 2026, AIDC is positioned as a strategic enabler of AI-powered retail, driving efficiency, accuracy, and seamless omnichannel experiences.

5. ENABLING STAFF SUCCESS AND EFFICIENT STORE OPERATIONS

AIDC is at the heart of these innovations. From RFID-enabled inventory management to AI-powered checkout and returns, data capturing technologies are streamlining workflows, empowering staff, and enhancing customer experiences. Retailers are adopting AIDC to automate decisions, reduce errors, and unlock new efficiencies across the value chain.

Retailers are adopting AIDC to automate decisions, reduce errors, and unlock new efficiencies across the value chain. This shift is fundamentally transforming retail operations by enabling businesses to respond rapidly to changing market conditions, customer preferences, and inventory needs. With AIDC, routine and complex decisions—such as stock replenishment, dynamic pricing, and workforce allocation—are handled by intelligent systems that analyze real-time data, forecast demand, and optimize resources without manual intervention.

By automating these processes, retailers can minimize human error, streamline workflows, and ensure greater consistency in operational outcomes. For example, predictive analytics and IoT sensors integrated into AIDC platforms help retailers manage inventory more effectively, reducing out-of-stock incidents and excess stock, while also supporting sustainability goals by minimizing waste. Automated controls also enhance compliance and security, as the systems can instantly flag anomalies or potential risks, ensuring swift corrective action.

Furthermore, AIDC empowers retail teams to focus on higher-value tasks, such as customer engagement and strategic planning, as repetitive and time-consuming activities are managed efficiently by automation. As seen at NRF 2026, the evolution of AIDC is crucial to get into Dynamic Commerce, immersive store experiences, and AI-driven and resilient supply chains—demonstrating the tangible benefits of automation for retailers, their customers, and the wider community.

HONEYWELL'S FLAGSHIP BOOTH: WHERE DYNAMIC COMMERCE CAME ALIVE

At NRF 2026, Honeywell's booth showcased more than 17 demo stations simulating real retail settings, offering hands-on solutions to everyday retail challenges

AGENTIC AI DEMO

Personal shopper localization, store assistance, and IT management, powered by predictive models. Incident reporting, and analytics showcased how AI is enhancing store colleagues outcomes and a better customer experience, merging technologies like mobile computing and electronic shelf labels (ESL), partnering with world-class companies like Vusion and Qualcomm.

RFID SOLUTIONS

Inventory management and associate productivity, with compact devices for tagging, picking, and display validation. Introducing a new all-in-one device with RFID technology incorporated (CT70), as well as an improved portfolio to cover projects on this technology.

SMART RETURNS KIOSK

Automated returns workflow using machine vision and scan engines for cost optimization and customer convenience, providing memorable experiences for retail's customers.

SMART PAY

[Additional capabilities in payment solutions](#), providing flexibility at the checkout, including product recommendations in partnership with Google Cloud and Android Enterprise.

SWIFT WORKER AUTOMATION & VOICE PICKING

Augmented Reality (AR) and Voice technologies for efficient order fulfillment and quality checks as well as in-store operations.



Honeywell



SHOPPING
THAT FEELS
PERSONAL

PROVEN SUCCESS: LESSONS FROM INDUSTRY LEADERS

Honeywell's solutions are trusted by leading retailers, delivering reliability, security, and measurable results. The implementation of AIDC technologies within these organizations has driven significant improvements in operational efficiency and customer experience. For a big US-based retailer, mobile computing streamline inventory management by providing real-time visibility as well as improving associate productivity through an all-in-one device strategy implementation.

A Global DIY Retailer benefits from AIDC's automation of routine tasks, such as product tagging and returns processing, allowing their teams to focus on higher-value activities like customer engagement and strategic planning. Automated controls enhance compliance and security by instantly flagging anomalies or potential risks, enabling swift corrective action and safeguarding both assets and data.

Overall, Honeywell Productivity Solutions and Services (PSS) has enabled retail leaders to realize measurable gains in productivity, loss prevention, and cost optimization. By integrating advanced technologies such as machine vision, RFID, and voice-directed workflows, these companies have set new standards for reliability and operational excellence in the retail sector.

Perhaps the most consistent message from NRF 2026 was a shift toward pragmatism. Retail leaders want technologies that deliver fast time to get value, measurable ROI, and proven scalability. Innovation, for its own sake, is losing relevance.

Successful retail technology partners will be those who can clearly link their solutions to tangible outcomes; fewer errors, faster throughput, safer environments, and more resilient operations.

KEY TAKEAWAY

NRF 2026 made it clear: AIDC and AI are not just trends, they are the foundations for dynamic commerce. Honeywell's vision is to empower retailers to lead the evolution, turning every challenge into an opportunity for smarter, more sustainable success.

Looking back at NRF 2026, it's clear that the future of retail is being shaped by real-world innovation. Honeywell's latest solutions, like the Smart Returns Kiosk, multi-modal checkout, and guided work; show how technology can make everyday

operations smoother, safer, and more efficient. Retailers everywhere are already seeing the benefits, with better productivity, unified commerce capabilities, and easier compliance. As shopping trends move toward greater efficiency, personalization, and sustainability, Honeywell is helping businesses stay flexible and competitive. The goal is simple: use smart tools to turn challenges into opportunities, making retail more resilient and rewarding for everyone.

For more information

automation.honeywell.com

Honeywell Safety and Productivity Solutions

855 S Mint St
Charlotte, NC 28202
800-582-4263
www.honeywell.com