

The Global State of Autonomous Stores

In a highly competitive global retail landscape, autonomous stores are an emerging force that addresses changing consumer behaviors, reduces operational costs, improves profitability, and powers revenue growth strategies. Advancements in autonomous store capabilities have matured into scalable, profitable, customer-centric models that allow customers to have a fully independent shopping journey. Autonomous store rollouts require a strategic crawl, walk, and run approach that leverages various innovative technologies and an integrated roadmap focusing on growth.

Autonomous stores extend to different segments in retail, including grocery, fashion, electronics, convenience stores, and QSRs. The connected consumer seamlessly navigates across digital, physical, and social platforms, migrating from discovery to transactional experiences within seconds. According to [Business Insider Intelligence](#), the number of global stores with autonomous capabilities rose from only 350 in 2018 to a forecasted 10,000 stores in 2024, with a sales transaction volume of under \$70 million to over \$20 billion.¹

The Evolving Autonomous Store Technology, Concepts, and Capabilities

Retailers have attempted to solve the friction-filled checkout experiences for decades. The new business models supported by autonomous capabilities provide a compelling value proposition for consumers. It significantly reduces operational and labor costs for retailers, with increased access to consumer data and in-store shopping behaviors. Autonomous stores drive efficiencies, enable personalized experiences, minimize theft, empower dynamic pricing, and provide seamless integration with omnichannel strategies, including:

- **Automated Checkout:** Leverages advanced computer vision
- **AI –** Provides personalized product suggestions

¹ In-store checkout revolution – Business Insider



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Öffentliche Verkehrsmittel:
U78, U79: Messe Ost/Stockumer Kirchstr.
Bus 722: Messe-Center Verwaltung

- **RFID & Smart Shelf IoT Sensors:** Tracks product inventory and movement
- **Real-Time Inventory Management:** Monitors product levels with seamless integration with order management systems
- **Mobile Apps, QR Codes, and Digital Interfaces:** Provides access to store layouts and personalized offers

Global Autonomous Store Success Stories

Żabka – The largest operator of autonomous stores in Europe

Polish [convenience store chain Żabka](#) is planning to become the biggest operator of autonomous stores globally and [overtake Amazon Go](#). With 7,272 outlets in 950 towns and cities serving almost three million customers daily, they are quickly becoming the largest convenience chain in Poland and across all of Central and Eastern Europe. Żabka has accomplished this by pioneering the use of artificial intelligence and mobile technology capabilities in autonomous stores.²



Żabka Convenience Store

Żabka's competitive advantage is its super convenient experience powered by AI. The shops leverage AI technology developed in

² Żabka – largest operator of autonomous stores in Europe – Notes from Poland 2023

collaboration with US firm AiFi and utilize the Microsoft Azure platform. This is how the purchasing process works:

1. Customers can only enter the stores once they have inserted their credit card or scanned the QR code on the Žabka app
2. Once inside, customers can take whichever products they want from the shelves and then leave
3. Camera systems recognize the products taken, and the amount is then automatically charged to their card

Hong Kong International Airport

The Hong Kong International Airport (HKIA) opened its first autonomous convenience store called "travelwell".³ Leveraging AI and computer vision technologies, HKIA developed innovative ways to streamline shopping. In partnership with Lagardère Travel Retail Asia, [HKIA is reinventing the airport shopping experience](#) and becoming a pioneer in the travel retail industry with this critical milestone.



travelwell concept store

The beauty of the HKIA travel shopping experience is its simplicity:

1. Customers tap their credit card at the entrance to access the store

³ Hong Kong International Airport Opens Unmanned Retail Outlet – Buysinessclass.com 2023

2. IoT sensing technology tracks their movement and shopping behaviors, automatically detecting chosen items
3. When customers are ready to exit, the sensor identifies purchased items and charges their credit cards

Self-Service Fanshop at Eintracht Frankfurt

Bundesliga club Eintracht Frankfurt opened a self-service fan shop in 2022 to complement their regular shops. At Deutsche Bank Park, fans can buy their products in just a few seconds, [simply by walking by](#)⁴. At the heart of the new store concept is “payfree Grab & Go” technology powered by RFID capabilities. It speeds up the checkout process, significantly increases traffic, and offers fans a seamless shopping experience.



The first Grab & Go Checkout without camera tracking and smart shelves:

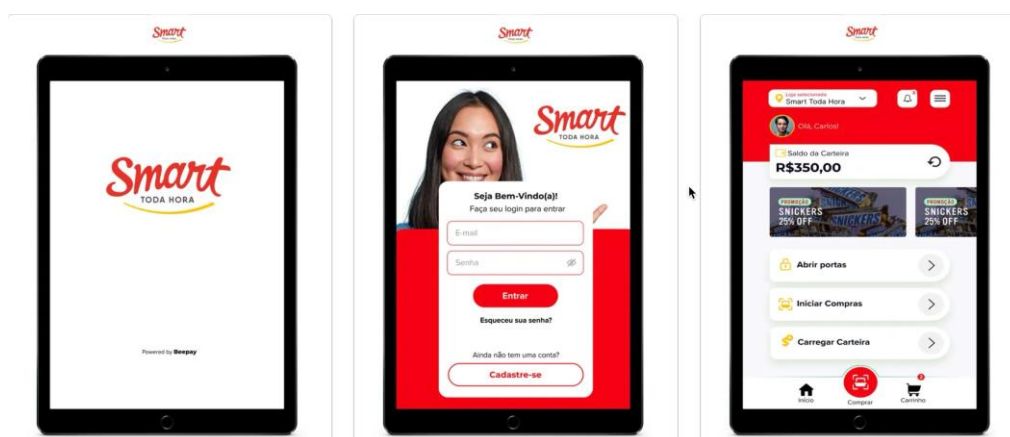
1. Bag Fast Track capabilities include a small scanning unit for automatic product registration
2. RFID tags identify the items in the bag
3. A display shows the customer an overview of the shopping basket and instructions on how to proceed

⁴ The Bundesliga soccer club plans to open a cashier-free fanshop – Payfree news 2022

4. Payment is made contactless at a terminal, whether with a physical card or via a smartphone

Snackin – A 100% autonomous micromarket

[Snackin](#) is a collection of autonomous stores based in Brazil, powered by their scan-and-go technology. With about 100 stores, they provide snacks to condos across Brazil. In August 2023, the supermarket Rede Smart launched Smart Toda Hora. Smart Toda Hora is open 24/7 and is powered by Snackin's technology. Customers unlock the door with the app, receive a personalized greeting voice message thanks to an integration with OpenAI, and scan and pay for the products using just their phone.



Smart Toda Hora

According to Snackin's Co-Founder and CEO [Resley Gabriel](#), personalized experiences make their autonomous stores unique. "The virtual voice assistant identifies whoever enters the store and welcomes them as if they were an attendant. Call their names and say good morning, afternoon, or night. It will also say happy birthday if it's the day. Additionally, it will talk about the store's main promotions, considering the person's purchasing history and the products they like most."

The Future is Bright for Autonomous Stores

With AI, RFID, and sensor solutions driving the change, autonomous stores' technological capabilities are rapidly transforming the customer experience. Between the efficiencies, security, intelligence, and personalized experiences, autonomous stores are a win-win for retailers and customers. As autonomous stores continue to roll out beyond the European, South American, and Asian markets, businesses must account

for the consumer adoption curve as retailers redefine their operating models for the Western markets. The sky is the limit for autonomous stores.

EuroCIS 2024 offers a good opportunity to get an up-to-date overview of the range of retail-relevant AI and checkout offerings for autonomous stores. The leading trade fair for retail technology will take place in Halls 9 and 10 of the Düsseldorf exhibition grounds and is open to trade visitors from Tuesday, 27 February to Thursday, 29 February 2024, daily from 10 am to 6 pm. Online, the day ticket costs 28 euros and the two-day ticket 39 euros. Tickets and further information are available at: www.eurocis-tradefair.com

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