

Retail Automation Market Assessment, By Component [Hardware, Software, Services], By Deployment [Onpremises, Cloud], By Application [Ecommerce, Inventory and Warehouse Management, Robotics and AI In-Store Operations, Security & Surveillance, Others], By End-user [Hypermarket, Supermarket, Retail Pharmacies, Fuel Stations, Others], By Region, Opportunities, and Forecast, 2017-2031F

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Abstracts

Retail automation market is projected to witness a CAGR of 12.3% during the forecast period 2024-2031, growing from USD 15.41 billion in 2023 to USD 38.98 billion in 2031. Retail automation involves the integration of advanced technologies and solutions, such as automated checkout kiosks and advanced inventory management systems, to streamline and optimize various processes within the retail industry, addressing challenges related to operational efficiency, cost-effectiveness, and evolving consumer expectations. Thriving in the retail sector has become increasingly challenging, characterized by disruptions in the supply chain, rising labor expenses, shifting consumer behaviors, and assorted hurdles. This environment places businesses in fierce competition, striving to surpass rivals and adjust to the swiftly changing market dynamics. Consequently, the automation of various facets within the retail business has evolved into a vital element in contemporary retail operations.

Retailers aim to automate as much as 70% of routine store tasks by 2025, emphasizing technological investments that enhance operational efficiency, resulting in lowered costs and increased profits worldwide.



E-commerce Automation Contributing Significant Market Growth

E-commerce automation is emerging as a transformative force and contributing to the growth of the retail industry significantly. As consumers increasingly shift towards online shopping, retailers leverage automation technologies to streamline processes, enhance efficiency, and deliver a seamless digital shopping experience. One of the primary drivers of market growth includes the adoption of automated order fulfillment systems. E-commerce platforms are deploying advanced warehouse management systems for automation of tasks such as order picking, packing, and shipping. This not only accelerates the order fulfillment process but also reduces errors and operational costs, leading to improved customer satisfaction. Additionally, the integration of artificial intelligence (AI) and machine learning (ML) in e-commerce automation is revolutionizing customer interactions. Al-powered chatbots and virtual assistants enhance customer service by providing real-time support, personalized product recommendations, and efficient issue resolution. These automated tools contribute to customer loyalty and retention while enhancing the overall shopping experience.

For instance, in October 2023, Walmart integrated generative AI to enhance its search functionalities, expanding its array of augmented reality (AR) and artificial intelligence (AI) features. The deployment aims to assist shoppers in navigating intricate purchases, prioritize product features, and present concise review summaries. Additionally, Walmart is currently in the testing phase of a hands-free shopping tool with voice assistance on its website. This trial includes assessing the feasibility of voice commands, engaging in conversations with a voice assistant, and facilitating the booking of pickup and delivery time slots. These innovative initiatives underscore Walmart's commitment to leveraging advanced technologies to provide a more intuitive and streamlined shopping experience for its customers.

Robotics and AI In-Store Operations to Facilitate Retail Automation Process

The integration of robotics and AI in in-store retail operations is revolutionizing the traditional retail landscape, offering many benefits that enhance efficiency, customer experience, and the overall performance of business. Automated robotics systems can streamline the tracking, counting, and restocking of products. Drones or robotic devices equipped with computer vision technology can perform inventory checks, ensuring accuracy and reducing the time and labor traditionally associated with manual stocktaking. AI algorithms contribute to demand forecasting and supply chain optimization. AI can predict consumer demand more accurately by analyzing market trends, historical sales data, and external factors. This, in turn, enables retailers to



optimize their inventory levels, reduce stockouts, and minimize overstock situations.

Al-driven chatbots and virtual assistants enhance the in-store experience. These intelligent systems can answer customer queries, provide product information, and assist with personalized recommendations. Al-powered systems learn and adapt based on customer interactions, continually improving their ability to address customer needs effectively. In-store robotics also contribute to the checkout process. Automated checkout systems, such as self-service kiosks, enhance the overall customer experience, including reducing waiting times. Additionally, robots can be employed for tasks like restocking shelves, cleaning, and even guiding customers to specific products within the store.

For instance, in October 2023, Amazon, the retail giant, initiated a trial phase for humanoid robots in one of its US warehouses with the intention of automating operational tasks. According to The Guardian, Amazon stated that Digit, the bipedal robot, is capable of gripping and lifting items. The current application of the device involves the movement of empty tote boxes within the warehouse. Nonetheless, this introduction has sparked concerns regarding the potential impact on the company's workforce, which comprises nearly 1.5 million human employees.

Omni Channel Retailing Driving Retail Automation Market Growth

In the context of retail automation, omnichannel retailing refers to the integration of automated systems and technologies across various channels, creating a unified and seamless shopping experience for customers. This approach leverages retail automation to connect brick-and-mortar stores, online platforms, and mobile applications, providing customers with consistent and personalized interactions at every touchpoint. Automation enables collecting and analyzing customer data from multiple channels to personalize marketing efforts, recommendations, and promotions. For example, if a customer browses online and then visits a physical store, the automation system can provide personalized suggestions based on their online interactions. Customers can effortlessly switch between channels during their shopping journey with retail automation. They can also browse products online, add items to their cart via a mobile app, and then choose to pick up the items from a physical store. Retail automation ensures that the transition between these channels is smooth and convenient.

Another instance of such a trend includes Starbucks, which has seamlessly integrated its mobile app, loyalty program, and physical stores to create an omnichannel



experience. Customers can order and pay for drinks through the mobile app, accumulate loyalty points, and then pick up their orders at a nearby Starbucks store. The company has successfully merged digital and in-store elements for a cohesive customer journey.

North America Dominates the Retail Automation Market

North America is the dominant force in the retail automation market, exemplifying a robust and technologically advanced retail landscape. This region's leadership in the market is driven by a convergence of factors, including a high level of technological adoption, a mature retail sector, and a strong emphasis on enhancing customer experiences.

The United States and Canada showcase a proactive approach to embracing retail automation technologies. Advanced point-of-sale (POS) systems, self-service kiosks, and sophisticated inventory management solutions are widely implemented across various retail establishments. The region's retailers prioritize efficiency gains, cost reduction, and staying at the forefront of technological trends to remain competitive in the dynamic market.

Moreover, the North American retail sector exhibits a notable trend toward omnichannel retailing, where online and offline shopping experiences seamlessly integrate. This requires sophisticated automation solutions that cater to both e-commerce and brick-and-mortar operations. The pervasive use of AI and machine learning (ML) technologies further contributes to the region's dominance, enabling data-driven decision-making, personalized customer interactions, and optimized supply chain management.

Government Initiatives

The central government in India has approved for 100% Foreign Direct Investment (FDI) in online retail of goods and services through the automatic route. Furthermore, there is noteworthy information regarding categorizing retail and wholesale trades as Micro, Small, and Medium Enterprises (MSMEs). This classification will enable these trades to avail loans designated for the priority sector. The government's proactive encouragement of digital transformation has proven to be a significant and positive development, and the retail industry stands as one of several sectors reaping the rewards of this groundbreaking innovation.

Impact of COVID-19

Retail Automation Market Assessment, By Component [Hardware, Software, Services], By Deployment [On-premises,...



The COVID-19 pandemic exerted a profound impact on the retail automation market. With lockdowns, social distancing measures, and changes in consumer behavior, retailers are accelerating their adoption of automation technologies to address challenges and enhance operational resilience. The demand for contactless shopping experiences led to an increased deployment of self-checkout kiosks, touchless payment systems, and robotic solutions for tasks like inventory management and order fulfillment. The pandemic also underscored the importance of e-commerce, prompting retailers to invest in automated solutions for online order processing and delivery. Supply chain disruptions further drove the adoption of automation to ensure efficient inventory management and seamless logistics. Overall, COVID-19 acted as a catalyst, expediting the integration of retail automation solutions to meet evolving consumer expectations and navigate the uncertainties posed by the pandemic.

Key Players Landscape and Outlook

The retail automation market is expanding due to the increasing emphasis placed by companies worldwide on establishing e-commerce infrastructure. Furthermore, the market expansion is exponentially facilitated by investments made by companies to enhance research and development (R&D) resources, engage in collaboration projects, bolster marketing efforts, and expand distribution networks. These factors collectively contribute to the rapid expansion of the market.

In October 2022, Focal Systems, a prominent retail automation provider, entered partnership with Piggly Wiggly Midwest outlets. Piggly Wiggly Midwest is set to initiate a trial of the Focal Operating System (FocalOS) across its stores in Wisconsin and Illinois. The core aim of this collaboration is to elevate the customer experience through utilizing FocalOS to digitize and automate diverse facets of their operations. This encompasses processes, such as ordering, inventory management, merchandising, and managing instore personnel, all contributing to an enhanced and streamlined business environment.



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*Companies mentioned above DO NOT hold any order as per market share and can be changed as per information available during research work



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