



NEW GENERATION TECHNOLOGICAL EQUIPMENT USED IN THE RETAIL INDUSTRY

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Abstract: This article analyzes the new generation of technological equipment used in retail industries, their functional capabilities, impact on service quality and their role in increasing competitiveness. Along with the implementation of automated checkouts, smart shelves, RFID, artificial intelligence, AR/VR and IoT technologies, existing technological, economic and personnel problems are also considered on a scientific basis. The results of the study show that these technologies have a significant positive impact on retail efficiency.

Keywords: retail, technological equipment, IoT, RFID, self-checkout, artificial intelligence, mobile payment, AR/VR, Big Data, digital transformation

The modern retail industry has been rapidly developing in recent years based on digital transformation, automation and customer-oriented services. The use of new generation technological equipment in global trade systems, especially in retail networks, plays an important role in improving the quality of service, simplifying the purchasing process and optimizing business processes. This essay provides a scientific analysis of modern technological devices used in retail chains, their functional capabilities, impact on efficiency, and promising directions.

The new generation of technological devices being introduced in the retail industry mainly includes the following categories:

- Automated cash registers (self-checkout);
- Smart shelves (intelligent shelves);
- Surveillance systems based on RFID technology;
- Interactive screens and AR/VR technologies;
- Mobile payment systems and contactless POS devices;
- Artificial intelligence-based recommendation systems and chatbots;
- Inventory and delivery management based on IoT and Big Data technologies.

Automated cash registers (self-checkout terminals) allow customers to independently scan products, make payments and complete the sales process without queuing. These systems reduce the need for human resources, create convenience for customers and increase the throughput of the point of sale.

Smart shelves, on the other hand, monitor the movement, availability and shelf life of products in

real time. These systems work through RFID or IoT sensors and automate inventory processes. They allow sales staff to send alerts, monitor stock levels and automatically form orders.

Also, one of the important parts of the new generation of technological equipment in the retail industry is recommendation systems powered by artificial intelligence. They analyze the buyer's purchase history and behavior and offer suitable products, promotions or services. This allows you to increase sales, provide personalized customer service and strengthen loyalty.

Through RFID technology, each product has a unique identification number and its movement is monitored in real time. These systems are used not only in warehouses, but also in retail stores to quickly identify products, detect losses and optimize the logistics process.

Contactless POS devices integrated with mobile payment systems (Apple Pay, Google Pay, etc.) allow customers to make convenient, fast and secure payments. This reduces queues, increases the speed of service and improves the user experience.

Also, the use of AR (augmented reality) and VR (virtual reality) technologies in the retail industry is making the shopping process interactive. For example, a buyer can enter a virtual store and try on a product in 3D or pre-evaluate the location of the product while staying at home. This experience speeds up the customer's decision-making process.

Equipment manufactured based on IoT (Internet of Things) technology performs functions such as automatic management of warehouses, tracking product movement, and controlling the temperature regime of refrigerators, freezers and storage devices. This is especially relevant for the food industry.

However, along with this technological progress, there are also problems. Firstly, the high initial costs and the need for maintenance of technological equipment. Secondly, the need to protect customer personal data, especially in AI and Big Data systems. Thirdly, not all employees are ready to work with new technologies, which requires constant training and advanced training.

Nevertheless, the implementation of new generation technological equipment in the retail industry plays an important role in increasing competitiveness, quickly and appropriately responding to customer needs, optimizing costs and increasing sales efficiency.

The implementation of new generation technological equipment in the retail industry is an important stage in the digital transformation of the industry. Automated cash registers, artificial intelligence systems, mobile payment tools and IoT devices dramatically increase the quality, speed and customer orientation of retail trade. For the successful implementation of technologies, it is necessary to focus on strategic planning, investment, training and security. The success of the retail industry in the future will depend on the level of effective use of these new generation technologies.

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