## **12 IoT in retail technologies that increase sales & improve customer engagement**





We are an award winning product design consultancy, we design connected products and instruments for pioneering technology companies.

# 12 IoT in retail technologies that increase sales & improve customer engagement

Reading time 16 mins

### **Key Points**

- Retail is evolving rapidly, and IoT technologies are revolutionising the industry by enhancing sales and customer engagement.
- Key IoT trends in retail include advanced inventory management using smart tags, smart shelves and dynamic pricing, personalised marketing with in-store beacons, and AI-enabled data collection.
- These technologies offer benefits like real-time inventory tracking, improved merchandising and brand visibility, and hyper-personalised shopping experiences.
- Overcoming implementation challenges such as cost, sustainability, and security requires strategic partnerships to develop scalable solutions that minimise upfront costs, incorporating lifecycle management principles in the conceptualisation phases and robust security measures.
- Retailers can leverage IoT to optimise operations, improve decision-making, and deliver superior shopping experiences.
- From energy management sensors to cashier-free stores, IoT innovations are reshaping how we shop and what we buy.
- Collaboration with experienced partners can help retailers and product designers to develop scalable, cost-effective IoT solutions that meet their unique needs.

# Elevate your retail business or product with cutting-edge IoT technologies. Call us for a quote.

<u>Get in touch</u>



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Retail is one of the world's most <u>dynamic and competitive industries</u> – staying ahead of the curve is essential for success. With the advent of Internet of Things (IoT) technologies, retailers and product developers now have powerful tools to enhance sales, increase customer engagement, and distinguish themselves in both online and in-store marketplaces. IoT in retail trends that are shaping the way we shop and influencing how products are brought to market:

- 1. Advanced retail inventory management using RFID (radio frequency identification) tags and sensors
- 2. Enhanced smart shelves equipped with weight sensors and RFID technology
- 3. Personalised marketing using Beacon technology
- 4. Artificial Intelligence (AI) enabled data collection for hyper-personalised experiences.
- 5. Supply Chain optimisation using GPS trackers and RFID tags
- 6. Smart mirrors

- 7. Customer footfall analytics
- 8. Energy management sensors
- 9. Smart price tags
- 10. Product interaction data
- 11. Cashier-free stores
- 12. AI Chatbots

<u>Call us</u> if you're a product developer or retailer interested in implementing IoT technologies for your business. We have over a decade of industry experience and can develop a perfect-fit tech solution tailored to suit an ever-changing landscape while offering long-term sustainability, profitability, and customer engagement.

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# What makes IoT and Retail such a perfect fit?

<u>IoT and retail</u> combined are the ideal hand-in-glove combination. IoT's versatility and the range of applications its technologies can be used for fit perfectly with retail and the diversity of customer needs it's required to meet. Examples of IoT technologies that have a range of applications in retail include:

• Sensors: Devices that detect and measure changes in the physical environment (e.g., humidity, motion, weight) and can then collect and transmit this information over a network.

- RFID Tags: Small electronic devices that use radio waves to transmit information wirelessly.
- Beacons: Small, low-energy Bluetooth devices that transmit signals to nearby smartphones or tablets.
- Augmented Reality (AR): A technology that overlays digital information, such as images, videos, or 3D models, onto the real-world environment, typically viewed through a smartphone, tablet, or wearable device.
- Seamless Omnichannel Experiences: Integrating IoT across various channels (e.g., online platforms, brick-and-mortar stores, mobile apps, and social media) to provide consistent and personalised customer interactions.

The power and potential of IoT lies in its ability to collect data in real-time. When leveraged correctly, this data gives retailers and product developers valuable insights into what drives consumer behaviour, signals when that behaviour is shifting gears or turning in another direction, and the ability to adapt and change course accordingly. Ultimately, this helps retailers optimise operations, improve decision-making, and deliver superior shopping experiences to their customers.

Your next IoT product or tech solution for a retail space doesn't have to be big and bold. Many of the IoT in retail trends are tiny – but mighty – applications (such as Bluetooth) that are cost-efficient and budget-friendly but significantly impact the success of your product, premises, and people! Schedule a free consultation with an expert on our team to discuss how you, too, can leverage the transformative power of IoT in retail.

# IoT in retail trends transforming how we shop - and what we buy

# **1.** Advanced retail inventory management using RFID tags and sensors

By embedding RFID tags in products and deploying sensors throughout the supply chain and in-store, retailers can accurately track inventory levels in real time. This enables them to optimise stock replenishment, reduce out-of-stock situations, and improve overall operational efficiency, leading to cost savings and enhanced customer satisfaction.

Retail giant <u>Walmart</u> started using RFID technology in its clothing department in 2020. By 2022, it had expanded its use to encompass other departments such as home and entertainment – and mandated their product suppliers to implement RFID tagging on their goods. <u>Zara</u> – a multinational fast-fashion company – is another leading brand that has successfully implemented RFID technology to improve inventory management and enable faster payments and easy returns to customers.

### 2. Smart shelves

Smart shelves with weight sensors and RFID technology have transformed retail merchandising by providing real-time inventory data and insights. These shelves automatically detect product movement and track inventory levels – altering staff when items are running low or are misplaced, preventing stockouts, and optimising shelf space allocation. By leveraging data from smart shelves, retailers can improve product placement, enhance in-store navigation, and increase sales.

By integrating smart shelf technology with customer loyalty programs or mobile apps, supermarkets like<u>Kroger</u> can track individual shopping behaviours and preferences. Based on this data, personalised product recommendations can be displayed on the smart shelves, guiding customers towards relevant products and promotions that align with their preferences and purchase history.

### 3. Personalised marketing using Beacon technology

Beacon technology enables retailers to deliver personalised marketing messages and promotions to customers' smartphones based on their location within a store. By strategically placing beacons throughout the store, retailers can send targeted notifications and offers to customers, driving engagement and increasing sales. Additionally, beacon technology provides valuable insights into customer behaviour and preferences, enabling retailers to deliver hyper-targeted marketing campaigns and enhance the shopping experience.

<u>Sephora</u>, a leading cosmetics brand, uses beacon technology to enhance its customers' shopping experience. Customers who download the app can scan products to read ratings and reviews and optin to receive targeted messaging and personalised alerts (e.g., free birthday gifts or free in-store makeovers).

### 4. Artificial Intelligence (AI) data collection

IoT products and platforms with AI-integrated algorithms enable retailers to collect and analyse vast amounts of data and deliver hyper-personalised shopping experiences. Insights regarding

customer preferences, purchase history, and browsing behaviour further allow retailers to tailor product recommendations, promotions, and marketing messages to individual customers, increasing customer satisfaction and driving sales.

### 5. Supply chain optimisation

IoT technologies such as GPS trackers and RFID tags significantly enhance a manufacturer or retailer's supply chain. By tracking the movement of goods from production facilities to distribution centres and ultimately to retail stores, retailers can gain real-time visibility into the supply chain, optimise inventory levels, and improve logistics efficiency. This enables retailers to reduce costs, minimise stockouts, and enhance overall supply chain performance.

<u>Amazon</u> and DHL use these IoT retail technologies for efficient package tracking and delivery. In addition, enhanced transparency in the supply chain leads to faster delivery times, lower operational

costs, reduced losses and improved customer trust.

### 6. Smart mirrors

By using augmented reality technology, these mirrors enhance the in-store shopping experience by providing interactive and personalised features. Equipped with IoT technology, smart mirrors enable customers to try on clothing virtually, visualise how different styles and colours look, and receive personalised recommendations based on their preferences and body measurements. By offering immersive and engaging experiences, smart mirrors increase customer engagement – significantly improving sales and differentiating retailers from their competitors.

UK high-street brands using <u>smart mirrors in retail</u> to improve the user experience include Top Shop, H&M, and Wella hair studios. While the way each brand applies the technology differs, the results are the same: increased customer engagement, loyalty, and conversations. At the same time, customers can share their experiences on social media, further increasing brand awareness and visibility.

### 7. Customer footfall analytics

IoT-enabled sensors and cameras collect data on customer foot traffic in retail stores or shopping spaces. By analysing this data, retailers can gain insights into customer behaviour, such as peak shopping hours, popular locations, and dwell times. Customer footfall analytics enable retailers to optimise store layout and merchandising strategies, improve staffing allocation, and enhance the shopping experience. It also allows the optimisation of spaces by identifying under-utilised areas and providing insights into how they could be repurposed for increased profitability.

### 8. Energy management sensors

<u>Energy management sensors</u> monitor and control energy usage in retail stores, helping retailers reduce costs and minimise environmental impact. These sensors track electricity consumption, temperature, and lighting levels, allowing retailers to identify inefficiencies and implement energy-saving measures. By optimising energy usage, retailers can lower utility bills, improve sustainability, and create a more comfortable shopping environment for customers.

Environmental Sustainability is core to <u>IKEA's</u> brand identity, and the energy management systems in all their stores reflect this. The IoT solutions they've implemented have led to significant cost savings, reduced environmental impact and a lower carbon footprint. I

### 9. Smart price tags

Smart price tags equipped with IoT technology enable retailers to dynamically update product prices and promotions. These digital price tags display real-time pricing information and can be remotely controlled from a central management system. Smart price tags streamline pricing processes, eliminate the need for manual price changes, and enable retailers to respond quickly to market conditions and competitor pricing, improving pricing accuracy and increasing sales. For example, Tesco uses <u>dynamic pricing</u> to achieve a real-time response to market changes. It enables them to quickly change prices according to competition, demand, and inventory (e.g., end-ofday promotions on perishable goods) without requiring additional staff to make those changes manually.

### **10. Product interaction data**

IoT technologies capture data on customer interactions with products, both in-store and online. By analysing product interaction data, retailers can gain insights into customer preferences, product usage patterns, and buying behaviour. This data also enables product developers to optimise product design and marketing strategies, increasing sales and customer satisfaction.

### 11. Cashier-free stores

Cashier-free stores leverage IoT technologies such as computer vision, sensors, and machine learning algorithms to enable frictionless shopping experiences. Customers can enter the store, select products, and leave without the need to check out at a traditional cashier. IoT technology automatically detects and tracks the items customers take from the shelves, and payment is processed seamlessly through mobile apps or payment cards. Cashier-free stores reduce wait times, enhance convenience, and improve operational efficiency for retailers.

A notable example is <u>Amazon Go</u>, which uses 'Just Walk Out' technology to enable customers to pick what they want from the store and walk out without needing to stand in a queue or interact with a cashier. Items they walked out with are then deducted from their linked wallet.

### 12. Al Chatbots

While not precisely an IoT technology, AI-powered chatbots are another powerful tool in the modern retail arsenal. These chatbots use natural language processing and machine learning algorithms to interact with customers, answer inquiries, and assist with product recommendations and purchases. By leveraging AI chatbots, retailers can respond immediately to customer queries, improve engagement, and streamline the shopping experience, ultimately increasing customer satisfaction and loyalty.

According to eMarketer, <u>two-thirds of retailers</u> are already using, or plan on using, Al chatbots in the next two years. On the other hand, 34% of consumers (increased from 19% in 2019) feel comfortable conversing with customer service through an Al chatbot. They use chatbots for near-me store locators, deal of the day, order status checks, 24/7 availability and objective responses.

### Final thoughts on retail IoT

As transformative and revolutionising as this industry is, the <u>challenges</u> and restrictions associated with IoT in retail are equally significant: Namely, cost, sustainability, and security.

When ineffectively secured against cybercrime, IoT devices leave users, manufacturers, and retailers open to a range of malicious attacks. At the same time, the data generated by users (e.g. smart mirrors in a changing room) and the ways it can be used by third parties for analytics and targeted marketing purposes raises many ethical questions – primarily if user consent isn't obtained beforehand.

In addition, the increased use of IoT devices (e.g. RFID tags) contributes to electronic waste. If proper recycling measures are not in place or enforced, this leads to serious sustainability issues with a considerable environmental impact.

Lastly is the cost – depending on the type and scale of the technology used – associated with implementing new technologies. Placing beacons in-store to send notifications and offers to customers is (relatively) financially accessible to retailers of all sizes. However, for retailers wanting to use RFID and sensor technology for inventory management, the hardware, software, integration, and maintenance costs of tagging each individual item can be prohibitive.

However, every challenge has its solution. Strategic partnerships help to reduce costs and develop scalable solutions that can grow with the business and minimise upfront costs. Collaborating with sustainability experts ensures that the lifecycle management of a product or retail space is <u>built into</u> <u>the design</u> from the conceptualisation phase. Strong authentication mechanisms, continuous monitoring, and robust encryption protocols help guard against cybercrime and unethical use of personal data.

<u>Call us</u> if you're looking for an all-in-one partner to develop IoT product technologies that stand out in the hyper-competitive world of retail. We have a solution for every challenge and take pride in staying ahead of evolving trends – ensuring that what we co-create is timeless, sustainable, and relevant for years to come.

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### Suggested reading

# **Responsible AI Implementation in Business: Building Trust, Ethics, and Governance**

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### FAQ's

### Why is IoT important in retail?

IoT enables real-time inventory tracking, personalised marketing, and enhanced customer experiences in retail. It optimises operations, improves decision-making, and drives sales by providing valuable insights into consumer behaviour and preferences.

### How does IoT benefit retailers?

IoT technologies in retail streamline operations, reduce costs and increase efficiency. They enable retailers to optimise inventory management, personalise marketing efforts, and enhance the overall shopping experience for customers, ultimately driving sales and revenue.

### What are the top IoT trends in retail?

Key IoT trends in retail include advanced inventory management, personalised marketing using beacon technology, and AI-enabled data collection for hyper-personalised experiences. These technologies enhance sales, improve customer engagement, and differentiate retailers in a competitive market.

### How do retailers use IoT for inventory management?

Retailers use IoT technologies like RFID tags and sensors for real-time inventory tracking and management. These solutions enable retailers to optimise stock replenishment, reduce out-of-stock situations, and improve overall operational efficiency, leading to cost savings and enhanced customer satisfaction.

### How do smart shelves work in retail?

Smart shelves equipped with weight sensors and RFID technology automatically detect product movement and track inventory levels in real-time. They alert staff when items are running low or misplaced, preventing stockouts and optimising shelf space allocation, ultimately improving sales and customer satisfaction.

### Which retail brands use IoT for personalised marketing?

Leading retail brands like Sephora and Zara use IoT technologies like beacon technology for personalised marketing. By strategically placing beacons throughout the store, retailers can send targeted notifications and offers to customers' smartphones based on their location, driving engagement and increasing sales.

### How does AI enable hyper-personalised experiences in retail?

Al-enabled data collection and analysis enable retailers to collect and analyse vast amounts of customer data, delivering hyper-personalised shopping experiences. Insights regarding customer preferences, purchase history, and browsing behaviour allow retailers to tailor product recommendations, promotions, and marketing messages, increasing customer satisfaction and driving sales.

### What are the benefits of supply chain optimisation using IoT?

IoT technologies like GPS trackers and RFID tags enhance supply chain visibility and efficiency in retail. They enable real-time tracking of goods from production to retail stores, optimising inventory levels, reducing costs, and improving logistics efficiency, ultimately leading to faster delivery times and increased customer satisfaction.

#### How do smart mirrors enhance the retail experience?

Smart mirrors equipped with IoT technology provide interactive and personalised features in retail stores. Customers can try on clothing virtually, visualise different styles and colours, and receive personalised recommendations based on their preferences and body measurements, ultimately increasing engagement and sales.

### What insights can retailers gain from customer footfall analytics?

Customer footfall analytics provide insights into customer behaviour, such as peak shopping hours, popular locations, and dwell times. Retailers can optimise store layout and merchandising strategies, improve staffing allocation, and enhance the overall shopping experience, ultimately increasing sales and profitability.

### When did retailers start implementing IoT technologies?

Retailers began implementing IoT technologies in recent years to enhance sales and customer engagement. Innovations like RFID tags, smart shelves, and beacon technology have revolutionised the retail industry, providing retailers with valuable tools to stay competitive and meet evolving consumer demands.

### How do energy management sensors benefit retailers?

Energy management sensors monitor and control energy usage in retail stores, reducing costs and minimising environmental impact. By tracking electricity consumption, temperature, and lighting levels, retailers can identify inefficiencies, implement energy-saving measures, and create a more comfortable shopping environment for customers, ultimately improving sustainability and profitability.

### What role do smart price tags play in retail?

Smart price tags equipped with IoT technology enable retailers to update product prices and promotions dynamically. These digital price tags display real-time pricing information and can be remotely controlled from a central management system, streamlining pricing processes and improving pricing accuracy, ultimately increasing sales and revenue.

### How do IoT technologies track product interaction data?

IoT technologies capture data on customer interactions with products, both in-store and online. By analysing product interaction data, retailers can gain insights into customer preferences, product usage patterns, and buying behaviour, enabling them to optimise product design and marketing strategies to increase sales and customer satisfaction.

### Which retailers are using cashier-free stores powered by IoT?

Retailers like Amazon and Tesco are leveraging cashier-free stores powered by IoT technologies. These stores use computer vision, sensors, and machine learning algorithms to enable frictionless shopping experiences, allowing customers to select products and leave without the need to check out at a traditional cashier, ultimately reducing wait times and enhancing convenience.

### What are AI chatbots, and how are they used in retail?

Al chatbots use natural language processing and machine learning algorithms to interact with customers, answer inquiries, and assist with product recommendations and purchases. In retail, Al chatbots provide immediate responses to customer queries, improve engagement, and streamline the shopping experience, ultimately increasing customer satisfaction and loyalty.

# How do retailers address the challenges of using IoT technologies in retail?

Retailers address challenges like cost, sustainability, and security by implementing strategic solutions. They form partnerships, adopt sustainable practices, and implement robust security measures to overcome challenges and unlock the benefits of IoT technologies in retail, ultimately driving sales and improving customer experiences.

### Why is data security important in retail IoT?

Data security is crucial in IoT for retail to protect sensitive customer information and prevent cyberattacks. Retailers implement robust encryption protocols, secure communication channels, and continuous monitoring and incident response mechanisms to safeguard data and maintain customer trust, ultimately ensuring the integrity and security of IoT systems.

# How can retailers ensure sustainability when implementing IoT technologies?

Retailers ensure sustainability when implementing IoT technologies by adopting eco-friendly practices and responsible lifecycle management. They prioritise energy-efficient devices, renewable energy sources, and green packaging materials to minimise environmental impact and promote sustainability, ultimately creating a more sustainable retail environment for customers and future generations.

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