

A woman with long brown hair, wearing a light brown dress, is smiling and looking at a rack of clothes in a clothing store. She is holding a white shopping bag. The background shows a well-lit store interior with more clothing racks and a window.

How Internet of Things will transform in-store experience

Internet of Things (IoT) is at the cusp of changing all business sectors including Retail.

A number of significant technology changes have come together to enable the rise of IoT. Prices of IoT hardware is dropping, putting sensors, processing power, network bandwidth, and cloud storage within reach of more users and making a wider range of IoT applications practical.

The connected experience

Need of increasing **customer loyalty, operational performance and in-store experience** is driving the rise of IoT in the retail sector.

According to a new research report by Global Market Insights, Inc., IoT in the retail market is predicted to reach over \$30 billion by 2024¹.

In another report², Verizon have found that retail companies have realized the potential of IoT and are positive about many aspects of its deployments:

- 77 percent of retailers believe that IoT solutions help improve customer experience.
- 89 percent of early-movers in retail report that IoT enables to gain increased insights into customer preferences.
- 77 percent of early-movers in retail say that IoT technology helps better cooperate with partners in delivering quality products and services to customers.

As per McKinsey Global Institute³, the potential economic impact of the IoT in retail environment ranges from \$410 billion (pessimistic view) to \$1.2 trillion (optimistic view) per year in 2025. Of these, the largest are automated checkout, real-time advertising and promotion (delivered to customers when they are in the store), layout optimization, and reduced inventory shrinkage.

IoT applications in retail

IoT has applications throughout the retail supply chain, starting from factories to warehouses to in-store. IoT has already made a significant influence on the retail industry by **enhancing the in-store shopping experience**.

IoT use cases in retail in-store

An IoT platform for the retail outlet and a connected mobile application will help make the retail outlet smart and create an amazing retail experience.

Retail-specific IoT platform will integrate all the retail-specific isolated solutions and provide a co-relation among them. Once a customer enters the retail store, the IoT tool will help identify the customer and offer personalized greetings. The application will have all the features, ranging from scanning barcodes to automatic checkouts at the retail store.

Product offers

Digital signage and LEDs will be controlled by the IoT platform. Targeted offers, generated on the basis of customer's details (identity, gender, demographics etc.) and previous transactions, will be displayed over the user application and nearest signage.

Product offers will help in upselling and cross selling by generating demand and enticing customers for an unplanned purchase.

Convenient search

The central IoT application will provide an interface to search the location of any item or any particular shelf.

In-store maps along with virtual path will be displayed over the application interface and displays. The customer will be guided with audio-visuals to the referenced location. This will save the customer's time to search and enhance his experience inside the store.

Layout optimization

Sensors placed at shelves will let the system measure the time spent by a customer near to a particular shelf or a set of products. Over and above, video analytics will recognize the customers, track their movements, and predict their buying behavior.

Integration of multiple technologies along with strong analytics provides a deep insight into customers' buying patterns. On this basis, the shelves' layout can be optimized, which in turn will increase sales.

Augmented reality

Product recommender, product reviews, and try and buy are a few major Augmented Reality (AR) use cases in retail.

The IoT-connected mobile application will open camera, capture product details and recommend relevant products/services. It will display user reviews on the basis of data captured from major social media sites.

It will allow the customer to try a product before purchase. For instance, a game demo can be shown instead of opening the pack. This will enhance the experience and help customers make better purchase decisions.

Smart shelves

Information will be collected from sensors placed on products and shelves and analyzed on the IoT platform.

A perfect digital retail should have an inventory balance between the goods on the shelves and those in the storage room. To link these two data sets and to prevent lack of visibility and mishandled stocks, retailers need to use sensors like cameras, beacons, RFID tags, store shelf sensors, digital price tags and smart displays.

Smart shelves can automatically monitor inventory and send alerts if a certain item has expired or running low. Therefore, connected devices are crucial for avoiding oversupply, shortage of goods, and thefts in stores.

Customer and employee tracking

Customer movement will be tracked using real time camera analytics.

In case of a theft or an unattended object, alerts will be generated and people movements will be tracked.

Mishaps like employee stealing, customer thefts, organized crime and more are accountable for the problem of shrinkage, loss and fraud that most retailers face. To prevent/reduce the number of frauds, retail IoT brings in an additional protective layer through use of smart IoT technologies.

Queue bursting

Individual barcodes will be scanned at the billing counter and accordingly, money will be deducted from integrated payment gateway. This kind of retail experience is required for densely populated retail stores which loses customers because of long waiting time at billing counters.

Automated checkout

The customer will have checkout options of going to a billing counter or an automated checkout while moving out of the store.

Sensors, placed near the exit gate, will automatically charge customers from the integrated payment gateway as soon as the person walks out of the store. Goodbye greetings with the amount deducted will pop up over the screen.

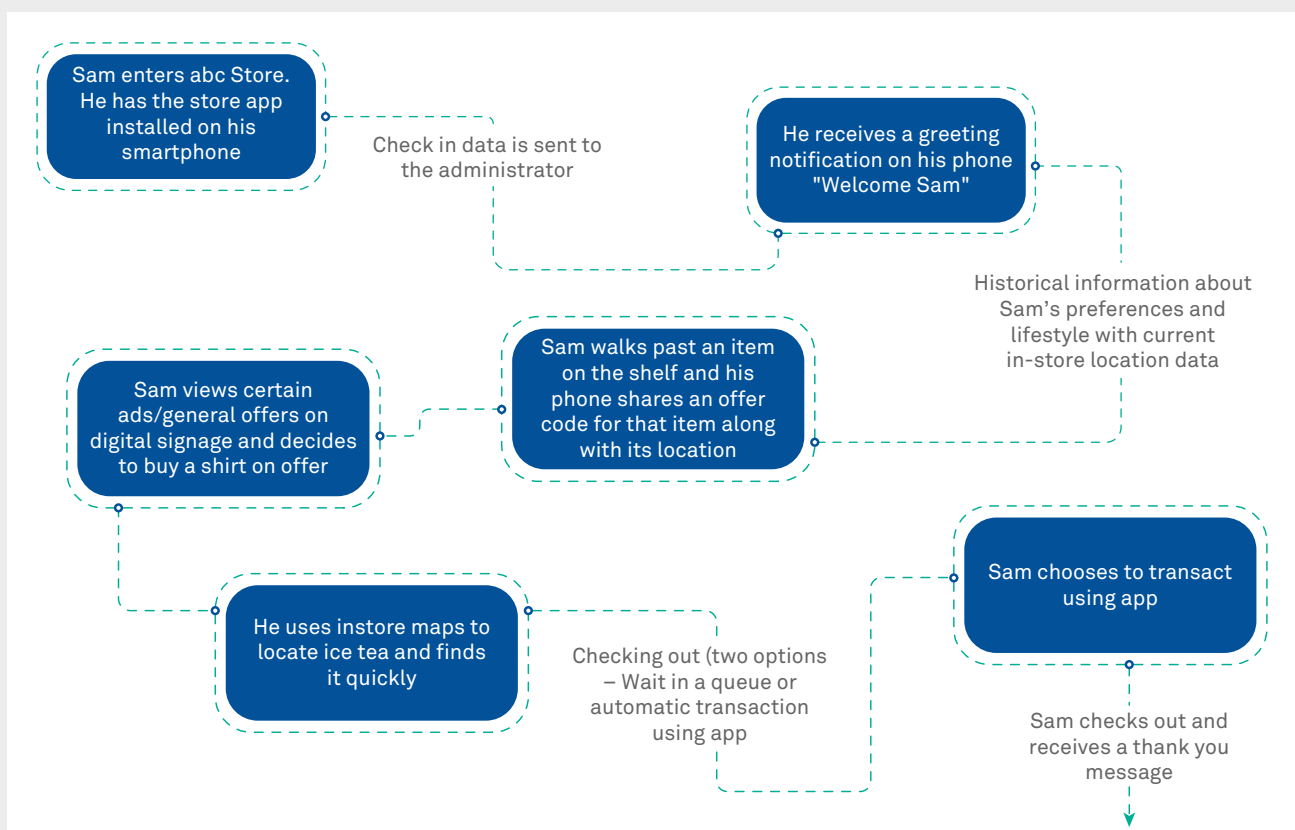


Figure 1: A customer's journey in a smart retail store

Implications for retail stakeholders

Customers

One of the most important sources of value will be greater customer convenience and time-savings. The customer will be able to make better and faster buying decisions and can get a virtual online experience at offline retail store.

When consumers sign up for services, they should bear in mind what kind of data permissions they are granting, so that their privacy is not compromised.

Retailers

Retailers will be able to create demands, engage customers, make customers more loyal and help retailers analyze the needs and preferences of customers. This in turn will increase the overall sales, and over/under stocking will reduce to a great extent.

Early adopters will have an opportunity to create competitive advantage through lower operating costs, the chance to win new customers, and greater asset utilization.



About the authors

Ashish Khare

General Manager,
Cloud & Infrastructure Services,
Wipro Ltd.

Ashish heads the Smart City and IoT initiative at Wipro and plays a key role in consulting for IoT and Smart City, covering integration, management and business operations. With over 25 years of experience, his current focus is on new technologies and solutions, especially around IT-OT convergence.

You can reach Ashish at ashish.khare@wipro.com

Tanuj Chawla

Pre Sales Consultant and SME - IoT,
Cloud & Infrastructure Services,
Wipro Ltd.

Tanuj plays a key role in consulting for IoT in the US and APAC Geos. He has expertise across multiple industries including Retail and Oil & Gas.

You can reach Tanuj at tanuj.chawla1@wipro.com

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Wipro Limited

Doddakannelli, Sarjapur Road,
Bangalore-560 035, India

Tel: +91 (80) 2844 0011

Fax: +91 (80) 2844 0256

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For more information,
please write to us at
info@wipro.com

