



Data analytics and AI in retail

Creating delightful customer experience



If customers have a negative experience shopping with one retailer, they don't have to go far to find another. The advent of online retail has put a staggering number of options within a few taps of the keyboard. A retailer that abruptly discontinues a beloved product will just as abruptly lose that product's customers, while a retailer that sends its customers tailored offers stands to gain their loyalty.

Let's take a look at some real world examples:

1. Bran was a loyal customer of a departmental store. A shaving razor was one of his frequent purchases. Suddenly, Bran stopped visiting the store. On realizing Bran's extended absence, the store sent him a surprise gift: a newly launched premium shaving razor from his favorite brand along with a message "We missed you. Your favorite brand has launched a new shaving razor and you might want to try it out. Have a nice day," Bran was delighted by this gesture and amazed that the store understood his preferences. He returned to the store again.
2. Rebecca was looking to buy a new laptop, but too many options confused her. She read online reviews, compared prices, specifications and ratings of different laptops in online stores. Observing her online behaviour, an electronics retailer provided personalized advice with a list of laptops that would suit her needs along with a promotional coupon. Rebecca was pleased with the customer service and the offer. She purchased a laptop from the electronics retailer.

For both online and brick-and-mortar shops, success hinges on understanding enough about their customers to create individualized experiences—a fact retailers are recognizing. The global retail analytics market is estimated to reach \$10.4 billion by 2023¹ and, according to a JDA Software survey, 40 out of 100

merchandising professionals and category managers said big data and predictive analytics are their top investment priorities over the next 5 years.²

A changing retail landscape

Retailers who have embraced digital transformation successfully are gaining a significant competitive advantage in an atmosphere where customer experience rules. And while traditional retailers are adopting digital technologies such as Internet of Things (IoT), mobile, augmented reality (AR) and virtual reality (VR), artificial intelligence (AI) and machine learning (ML) to connect with customers, digital players have recognized the advantages of establishing brick-and-mortar locations to round out the experience they can offer their customers.

Here are a few of the most disruptive developments in retail today:

1. **VR and AR** - Simulation technology allows customers to arrange furniture in a virtual rendition of their home, check the fit of clothes without trying anything on, and even test drive a car.
2. **Customer adoption of emerging platforms** - Shoppers increasingly use technology to research products and services, making it essential for retailers to address customer concerns in real time.
3. **New classes of retailers** - Retailers are inventing new business models such as brick-and-click that integrate online and offline sales portals.
4. **New metrics to measure success** - Customer experience per square foot is supplanting sales per square foot as the primary measure of retail performance.
5. **Rising digital adoption** - Retailers are engaging AI technology to supplement human customer support. Chat-based shopping and voice commerce increasingly deliver



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personalized, customized, and localized experiences to customers.

(NFC) and quick response (QR) codes provide opportunities to retailers to engage with customers via their smartphones.

6. **Essential mobile devices** - Proximity technologies such as Bluetooth Low Energy (BLE) beacons, near field communication

The following are some scenarios where AI and ML will disrupt the way retailers operate:

Use case	Traditional retailers	AI/ML enabled retailers
Customer segmentation	Adopt mass, demography-based segmentation	Adopt micro-segmentation by building a strong opinion-based individual customer persona
Customer interaction	Send one-way messages like notifications, emails, birthday greetings, etc.	Use Personal Digital Assistants that can help in interactive, two-way communication and respond to customer questions through voice and chat box based AI bots
Intelligent product recommendation	Provide product recommendations based on product compatibility and sales history	Provide recommendations by understanding the what, how and why of customer requirement
Churn management	Detect customer churn based on purchase transactions	Predict customer attrition based on the customer's persona, buying behavior and other external factors
Pricing	Recommend pricing based on pre-defined factors like sales history promotion and holiday calendar etc. Struggle to compete with online retailers	Monitor competitor price changes and market fluctuations in real time and recommend pricing at product and store level

Use case	Traditional retailers	AI/ML enabled retailers
Forecasting	Forecast sales and inventory based on pre-defined factors. Difficult to predict demand changes based on real time internal and external events	Able to monitor real time internal and external events and provide forecasts with greater accuracy
Inventory management	Calculate inventory level based on the beginning of the day's stock and sales data. Difficult to monitor real time stock and inventory risk situations	Monitor real time stock situation and predict out of stock or stock at risk situations by analyzing customer behavior, fashion trends, weather patterns, etc.
Store labor optimization	Staff allocation and scheduling for individual stores based on top down approach using historic sales data of each store	Identify potential workload drivers and forecast the required workforce hours based on real time internal and external factors for staff allocation and scheduling
Logistics	Difficult to track orders and predict delays in real time	Enable real time data sharing, order tracking and delay prediction through the supply chain critical path

How data analytics and artificial intelligence will reshape retail operations

To achieve a successful digital transformation, retailers need to do more than simply acquire huge data sets. Artificial intelligence capabilities can equip retailers with the ability to ingest large volumes of data in various formats across locations, learn from patterns, and respond in real time.

In our experience with providing data analytics support to a leading US electronics retailer, we saw that artificial intelligence (AI) and machine learning (ML) resulted in 4% increase in sales and 5% improvement in promotion effectiveness. Creating a 360° customer profile also helped generate relevant, personalized offers to customers.

In addition to helping retailers customize their offers, AI and ML enable predictive analytics, allowing retailers to project the details of a customer's history into the future, and calculate outcomes for events such as product sales or store renovations. Understanding these outcomes vastly increases retailers' ability to prepare for events and respond to customers proactively. Thus, AI and ML offer enormous potential for retailers to deliver compelling customer experience, drive cost efficiencies, and even improve employee motivation. Data analytics, AI and, ML have already begun to disrupt the way retailers do business. Retailers that successfully adopt digital technologies will reap competitive advantages.

¹ <https://www.researchandmarkets.com/reports/4392738/global-retail-analytics-market-2017-2023#pos-1>

² <https://www.retaildive.com/news/survey-big-data-predictive-analytics-top-investment-priorities/445785/>

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