

# E-Commerce, Self-Checkout, Omnichannel and more drive retailers to leverage new technologies

*Meeting Today's Retail Challenges with Technology Investments*



Razor-thin margins are a fact of life for retailers, and this keeps the industry on a constant search for operational efficiencies and cost-cutting opportunities. The search became more urgent in early 2020 as a result of new challenges brought on by COVID-19 related lockdowns and restrictions on hours of operation. As the industry – and society itself – return to normalcy, retailers are now facing a critical labor shortage and supply chain disruptions. At the same time, the industry must continue dealing with the usual drive for efficiencies and evolving consumer demands.

Prior to the pandemic, the industry already was ramping up omnichannel strategies with the goal of delivering a seamless, unified customer experience between online, mobile, and physical purchasing channels. The pandemic, which for a time, restrained consumers from shopping in brick-and-mortar stores, accelerated omnichannel implementation. At the height of the pandemic in spring 2020, research firm NielsenIQ found that [72% of consumers](#) globally were omnichannel shoppers, often using digital channels “to research, compare prices, and hunt for the right deals before deciding whether to leave home to make the purchase at a physical store or buy it online.”

As the omnichannel shifts from aspiration to priority, retailers also need to revamp physical stores in order to attract customers who may have avoided shops while the COVID-19 virus was spreading. But attracting shoppers is only part of the challenge; retailers also must find ways to improve conversion rates

so that shoppers don't just browse and leave. Often, shoppers walk out empty-handed because they cannot find the items they wish to purchase or an associate to help them.

Technology and automation are at the core of retailer strategies to spruce up brick-and-mortar locations. Retailers need to improve inventory management to address supply chain disruptions, accelerate checkouts to enhance customer experience, and refine curbside pickup and BOPIS (buy online, pick up in store) processes to satisfy shoppers. There is an embarrassment of riches when it comes to technology choices, from handheld scanners to expedite checkout and warehouse picking and packing to applications that capture data on buying patterns to artificial intelligence (AI)-powered cameras that recognize products and tally purchases, so customers don't have to stand in line at checkouts.

### **New and Ongoing Challenges**

Technology and automation are especially valuable in helping retailers address staff shortages. In June 2021, U.S. job openings reached a record [10 million](#), according to the Labor Department. Retail is one of the most affected industries. Technology enables retailers to better focus what staff they have on the customer experience in order to keep shoppers coming back. It's important to recognize, however, that the labor shortage doesn't just create front-of-the-store vacancies; it also opens staffing gaps for warehouse workers, merchandisers, and drivers. Vacancies in all these areas can create a domino effect that inhibits a retailer's ability to provide a satisfying customer experience.

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Even if a retailer were to deemphasize in-store shopping – which no retailer truly wants to do – and focus more on curbside pickup, stores still need employees to capture orders from a digital application, pick items off a shelf, and walk the purchase to the curb once the customer arrives. A refined, orderly curbside process requires a coordinated effort to synchronize mobile and online ordering applications with inventory systems and applications that alert associates to the arrival of a customer. Capturing and sending data to the right devices and users are critical to a smooth process.

As retailers perfect their BOPIS and curbside fulfillment, they also are under pressure to improve in-store conversion rates. While traffic is returning to pre-pandemic levels at physical locations, customers don't always buy something. In some cases, they can't find what they are looking for as a result of supply chain disruptions caused by the pandemic. And because stores are so strapped for staff, sometimes shoppers cannot find an associate to help them find a product or answer questions.

However, whatever the challenge a retailer faces, be it staffing shortages, supply chain issues, or low conversion rates, there is a technology solution that addresses the problem or at least makes it more tolerable. In identifying which solutions can help them, merchants should focus on the most urgent needs first, and build on them to implement comprehensive automation and omnichannel strategies. With well-planned and executed technology implementations, retailers can reallocate staff to focus on value-building endeavors such as branding and customer experience.

### **Technologies Worth Considering**

As with any technology initiative, a good place to start is identifying and addressing pain points. For retailers, pain points revolve around long checkouts, inability to capture and act on data, lack of automation, and disparate systems for ordering, inventory, and fulfillment.

## Checkout Solutions

The main objective at checkout is to shorten lines and move shoppers quickly through the lanes. Machine vision – also known as computer vision – can create a frictionless checkout experience. It entails deploying fleets of AI-enabled cameras through a store to track shoppers' every move and record items they place in their carts. Receipts are tallied automatically and sent electronically to shoppers.

Solutions with AI-enabled cameras are under development to recognize produce. This implementation will spare shoppers from navigating multiple checkout touchscreens to find PLU codes for their oranges, onions, and tomatoes. In testing, the technology has been found to reduce PLU lookups from 15 to two seconds, a significant time savings.

This is the model employed at Amazon Go locations. It's expensive and complex to implement, manage and maintain, placing it out of reach for most small retailers. But as often happens with technology, machine vision in time may become more attainable as price points drop and complexity is addressed. In the meantime, retailers may be able to deploy machine vision in limited ways. For instance, solutions with AI-enabled cameras are under development to recognize produce. This implementation will spare shoppers from navigating multiple checkout touchscreens to find PLU codes for their oranges, onions, and tomatoes. In testing, the technology has been found to reduce PLU lookups from 15 to two seconds, a significant time savings.

## Handheld Scanning

Handheld scanners have been part of the point of sale (POS) system for decades; cashiers use them to read barcodes on heavier items without lifting them off shopping carts. These devices have improved vastly over the years, with some models now offering a much quicker response and an extensive depth of field of 0.5 to 110 cm / 0.2 to 43.3 in. This allows scanning from a greater distance, sparing cashiers from walking around a conveyor belt to capture a barcode.

In addition to checkout, scanning technology is employed in various other applications. Retailers leverage handheld scanners to document a product's traceability journey from the arrival at the warehouse dock to delivery at the consumer. Handhelds also play a role in curbside pickup; these devices send alerts from the backroom that an order is ready. They can also be used to notify staff that a customer has arrived for pickup. Used in inventory management, receipt of products and materials, picking and shipping, handheld scanning expedites processes, reduces errors, and increases productivity.

These same benefits apply when handheld technology is implemented by shoppers. Some retailers are providing devices to shoppers to scan every item they pick off the shelf. By the time shoppers reach the checkout, the invoice has been tallied and it's just a matter of paying for the purchases. Using links to mobile apps, the checkout step can even be skipped completely, creating a truly frictionless process.

## Mobile POS

Mobile POS, sometimes referred to as mPOS, provides another way to streamline checkout. It leverages tablets and smartphones to perform POS functions but makes it possible for associates to move the checkout around the store as they engage with customers.

This approach gives retailers the opportunity to turn every associate into a walking POS. As an associate assists a customer, the employee can scan or enter the items into the device, build a ticket, process payment and complete the transaction. A customer using plastic or a mobile wallet can walk right out; if the transaction involves cash, both the associate and customer must walk to a cash drawer. The process is significantly faster than waiting at checkout.

## **Product Feed Management**

As retailers look for solutions to address their challenges, one area that bears close attention is inventory. Companies have struggled with keeping accurate track of inventory, even though inventory management applications have been available for decades. Part of the issue is figuring out how to track stock and feed information throughout the organization in real-time.

This requires tight integration between POS data with backroom management systems, and online shopping, and mobile ordering systems. At any of those points, if information is inaccurate or outdated even by a few seconds, it can cause frustration for customers who may take their business to a competitor. It can be especially frustrating in physical stores when customers arrive expecting to purchase an item that is supposed to be in stock only to discover that it is not.

Product Feed Management applications help retailers address this challenge. The software enables retailers to create a single product data stream that is fed to all endpoints in the required format, including the retailer's own website and third-party marketplaces and services. Information is updated and fed to marketing, merchandising, and advertising platforms as changes take place. The implementation of smart product feeds is especially critical as retailers develop their omnichannel strategies. It helps increase inventory accuracy and navigates supply chain issues that have been occurring since the start of the pandemic.

## **AI, Analytics and Mapping**

Deploying a Product Feed Management system helps optimize retail operations and improve the customer experience, but retailers should also consider using AI and data analytics to further refine customer engagement. AI-driven analytics applications can be deployed to track and recognize customer buying patterns and preferences, both on the web through ordering systems and at physical stores through Wi-Fi networks.

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Some retailers use this data for marketing and advertising purposes, but it's also possible to leverage AI to further enhance the customer experience at physical locations. Retailers can send information to individual smartphones to direct a shopper to the right place in the store to find an item. A similar data-driven process can help guide curbside and BOPIS customers, making it easier and faster to pick up their purchases. Machine vision can play a role in curbside pickup by placing cameras outside a store to help record customer arrivals and feed the information to the associates who fulfill the order.

Mapping applications also have a role in curbside order fulfillment. Google Maps, for instance, has started adding curbside pickup information such as location and fees to business profiles. The software giant is testing a service that coordinates information between the merchant and the shopper, sending notifications to customers for when to leave home and sharing arrival times with the store. Google is also working on an indoor version of its walking directions application, Live AR, to direct shoppers inside a store.

## **Workforce Management**

Considering retailers' staffing challenges, it makes sense to implement workforce management applications. This software is especially useful for large stores and retailers with multiple locations. It enables businesses to optimize workforce utilization through planning, scheduling, and tracking the time that employees spend on their tasks and responsibilities.

Data collected by the software reveals where and when staff utilization is meeting or missing company goals. By analyzing the data, managers can refine scheduling to ensure proper staffing levels at peak times and reassign employees when necessary. Workforce management can also be leveraged to match expertise and skills to specific tasks. The outcome is higher employee productivity and better overall store performance.

At a time when achieving proper staffing levels is such a challenge for retailers, the implementation of workforce management software can help a business get the most out of every staff hour. Optimizing staff utilization makes a real difference in how a store is managed and delivers a competitive advantage to those that get it right.

### **Integration Concerns**

Automation and omnichannel technologies deliver a host of benefits, from refining inventory processes to streamlining checkouts to improving website performance. However, integrating new applications and processes with legacy systems can be complex, time-consuming and expensive.

This is the main reason implementation of omnichannel strategies has taken place slowly. Deploying the needed applications typically requires investments in infrastructure, hardware and bandwidth, all of which add to the cost and complexity of a project. These initiatives also add to the burden on IT departments, which often are understaffed and struggling with staffing issues because of ongoing skills shortages.

Technologies such as machine vision may not be within reach of all retailers, but there are still plenty of improvements that merchants can make to optimize operations. For instance, retailers can use RFID (radio frequency identification) systems in warehouse and store shelves to track and update inventory. Investments in mobile POS and handheld technology to streamline checkouts and curbside pickups can be cost-effective with proper planning and execution. Step by step, even smaller, resource-strapped retailers can leverage these technologies to meet challenges, modernize operations and increase competitiveness.

### **Conclusion**

The retail industry will always face challenges. Be they margin pressure, staffing shortages, supply chain issues or evolving customer demands, retailers must constantly reevaluate their systems and processes to make refinements where and when needed. Technology plays a major role in this process by delivering efficiencies that improve operations, productivity and customer experience.

For best return on investment, retailers should approach automation and omnichannel implementations strategically and methodically. That means starting with solutions that deliver the most value and address the most pressing needs. Retailers should then build on each solution to achieve a comprehensive automation and omnichannel strategy. In so doing, retailers can better focus their staff on customer-facing tasks to promote their brand and improve the overall customer experience. As a global leader in retail technology, Datalogic can help retailers leverage solutions like AI, machine vision, mobile devices and handheld solutions. To learn more, visit [www.datalogic.com](http://www.datalogic.com) or contact your local Datalogic representative.





#### **About Datalogic**

*Global technology leader in the automatic data capture and factory automation markets since 1972, specialized in the designing and production of barcode readers, mobile computers, sensors for detection, measurement and safety, machine vision and laser marking systems.*

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