

A man with glasses and a woman are looking at a tablet together in a warehouse setting. The man is on the left, wearing a blue button-down shirt and glasses. The woman is on the right, wearing a light blue button-down shirt. They are both looking at a tablet held by the woman. The background shows warehouse shelving with boxes. The entire image has a red overlay.

# Expanding

## USE CASES FOR RFID

ENABLING BOPIS, CUTTING INVENTORY  
AND SPEEDING CHECKOUT

retail  
**TouchPoints**<sup>®</sup>

SPECIAL REPORT

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A man wearing glasses and a checkered shirt is looking at a tablet in a warehouse setting. In the background, there are stacks of cardboard boxes.

## EXPANDING USE CASES FOR RFID ENABLING BOPIS, CUTTING INVENTORY AND SPEEDING CHECKOUT

The increasing popularity of omnichannel initiatives such as BOPIS and ship-from-store has given new urgency to a perennial retail problem: **executing store-level inventory accuracy**. Reducing out-of-stocks always has been critical to boosting sales: after all, customers can't buy what they can't find. Now, however, with many stores doubling as online fulfillment centers, there are new requirements for quickly locating items ordered online so they can be prepped for shoppers coming into the store to pick them up. That makes it more vital than ever for retailers to know exactly **what items are where at any given time**.

"The ultra-dynamic nature of inventory resulting from BOPIS, buy online, return in-store (BORIS) and ship-from-store is making the need for enhanced analytics and inventory management more acute than ever," said Tyler Higgins, leader of the retail practice at [AArete](#) in an interview with Retail TouchPoints. "As a result, RFID tags, an old technology, are now being deployed ever more frequently to help solve the inventory problem. There continues to be double-digit percentage growth in the use of RFID driven by the reduction in cost of RFID technology as well as the push to better manage a dynamic inventory."

All these factors have amplified interest in RFID technology, which already is quite strong: **69%** of retailers around the world say they have a significant level of RFID adoption, according to a 2018 [report from Accenture Strategy](#). Using RFID produces tangible results: **seven out of 10** retailers using RFID showed sales improvements of **1.5% to 5.5%**, according to a [GS1 UK report](#). Using RFID boosted inventory accuracy rates from a range of **65%-75%** up to **93%-99%**.

Now, retailers are looking at ways to get even more out of their RFID investment, both by taking advantage of the increased inventory visibility that RFID affords and by using the tags to streamline and enable other operations. Emerging use cases include:

- Using more accurate inventory data to **reduce safety stock levels** and **gain a clearer view of inventory enterprise-wide**;
- Incorporating **RFID-tagged items** with Internet of Things (IoT) solutions such as **smart shelves**; and
- Leveraging **RFID at the POS to reduce checkout times**, and incorporating RFID with other technologies to **enable cashierless stores**.

“When retailers lack up-to-the-minute inventory data, they use safety stock to account for the lag time. That’s crazy, because it means retailers are over-inventorying and buying more than they need.”

- KEN MORRIS, BRP CONSULTING

## CUTTING SAFETY STOCK = COST SAVINGS

The growth of BOPIS and other omnichannel services has ramped up retailer demands for more accurate inventory across the entire enterprise. For many retailers, “it’s not just inventory for the stores, it’s also e-Commerce, mobile and call center [channels],” said Ken Morris, Principal, **BRP Consulting** in an interview with *Retail TouchPoints*. Many retailers maintain separate inventories for each channel and still rely on technology that syncs them up nightly, or even less frequently than that. This is the equivalent of “trying to cross Fifth Avenue at noon with yesterday’s traffic information,” he added.

When retailers lack up-to-the-minute inventory data, “they use safety stock to account for the lag time,” said Morris. “For example, if the safety stock level for an item is two, and that’s how many are in a store, someone placing a BOPIS order will get a message that the item is out of stock. That’s crazy, because it means retailers are over-inventorying and buying more than they need.”

### Matalan Boosts Inventory Accuracy 30% With Chainwide RFID Deployment

The UK-based fashion and homeware retailer **Matalan** boosted its inventory accuracy to more than **95%** following deployment of an RFID-based solution across its **220** stores. Following a two-store pilot, the technology was installed throughout the chain during a five-month period, going live in November 2018.

The solution uses Clarity software from **SML**, which also provided the majority of tags. The EPC UHF RFID tags are applied to all products sold in Matalan stores, including apparel, home goods, pillows, towels and blankets. Most products are tagged at the point of manufacture. After they are received in the store, the tags are read on a cycle-count basis using a **Zebra Technologies** RFP8500 sled reader connected to a Zebra TC51 mobile computer. Each store is equipped with multiple handheld readers and mobile computer kits.

The handheld devices and the Clarity dashboard can display the tag data so store associates, store managers and headquarters personnel can access inventory counts. This gives Matalan a companywide view into both inventory availability and performance.

The software can display progress in the receiving of goods according to a particular order on the handheld device, so associates can view any products that may be missing from an order as they read the tags.



“Retailers with excess inventory in the wrong places are marking down product that they could have sold at full price, so they are often making little or no profit on those transactions.”

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Costs go beyond just buying more items than are needed: retailers with excess inventory in the wrong places are “marking down product that they could have sold at full price, so they are often making little or no profit,” on those transactions, said Morris.

However, when armed with RFID-enabled inventory data from stores and distribution centers, retailers can enhance the profitability of individual transactions. For example, while most items bought online and shipped from a store are sent from the location that’s geographically closest to the customer, this isn’t always the most cost-effective move.

“I’m on Cape Cod, so most retailers would automatically ship an item from their Hyannis store,” said Morris. “But the reality is that if it’s a seasonal cold-weather item and it’s Cape Cod in the winter, they are quite likely to sell the item at full price in the store itself. But the same product might be sitting in ‘dead’ inventory in Jacksonville, Fla. If the retailer can get a full-price sale on the item, it can more than cover the extra shipping cost to send it from the Florida store.”

# RFID BY THE NUMBERS



**69%** of retailers around the world cite a significant level of RFID adoption.



Retailers that have piloted or adopted RFID reported an average **8.3%** ROI.

Source: Transforming Modern Retail: Findings Of The 2018 RFID In Retail Study.

**85%** of all retailers offer at least one omnichannel shopping method (e.g. BOPIS, ship-from-store); for RFID adopters, the figure is **96%**. Among RFID adopters, **83%** offer three or more omnichannel capabilities.

Source: Transforming Modern Retail: Findings Of The 2018 RFID In Retail Study, Accenture Strategy



**80%** of global retailers believe RFID's benefits cannot be replicated with other technologies.

Source: Transforming Modern Retail: Findings Of The 2018 RFID In Retail Study, Accenture Strategy



**Seven out of 10** retailers studied using RFID showed sales improvements ranging from **1.5%** to **5.5%**.

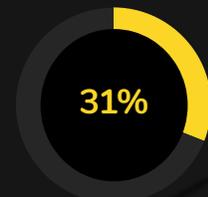


Using RFID boosted inventory accuracy rates from a range of **65%-75%** up to **93%-99%**.

Source: Measuring The Impact: Key Lessons From 10 Retailers Using RFID, GS1 UK



vs.



Order accuracy using EPC (Electronic Product Code) and RFID was more than 3X higher than using UPC (Universal Product Code/barcode) technology: **99.9%** vs. **31%**.

Source: "Project Zipper": EPC-Enabled Item-Level RFID Supply Chain Brand/Retailer Data Exchange Study, Auburn University RFID Lab, October 2018.



Integrating RFID and IoT also can help with in-store task management, providing associates with real-time data about misplaced products or items that need to be brought onto the sales floor from the back room.

## COMBINING RFID AND IOT TO ENHANCE CUSTOMER SERVICE

Retailers that have deployed IoT technologies in their stores also can get more out of their RFID investment. “There are a lot of devices — products themselves and smart shelves — that could be enabled, or already are capable of, broadcasting information, but no one is listening,” said BRP’s Morris. “Even the lights in the store are broadcasting, because when they fail they are providing an alert that they need to be replaced. We think that everything will broadcast in the future, so for example a smart shelf label could alert a system that an item is out of stock.”

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There are customer-facing applications as well: “We built a custom app for one of our furniture clients that leveraged RFID for product location,” said Morris. A customer that viewed a living room set online could later go to the store, and if the customer had opted in as a member of the retailer’s loyalty program, “they could bring up what they had previously viewed on the app, and get a map around the store to every product in the set, leveraging RFID,” said Morris. “People are merging the online and in-store experience in this way today.”

### RFID Gives Outdoor Voices Associates Access To Accurate Inventory Chainwide

**Outdoor Voices** already has seen a strong payback from its RFID-tagging initiative. Inventory counts for each store, which previously took approximately 10 hours and dozens of store associates to complete, can now be accomplished by one associate in less than 20 minutes, according to Kevin Harwood, VP of Technology for Outdoor Voices.

Now, a collaboration with **NewStore** that provides real-time inventory information to associates via an iPhone app can further boost the retailer’s ROI. The app, integrated with **Nedap**, gives associates visibility into item-level inventory at all nine Outdoor Voices stores as well as its warehouse.

“Now we’re able to track where each item physically lives within our stores down to single unit counts,” said Harwood. “This ultimately makes more inventory available for our customers, so they walk away with the technical apparel they’ve been looking for, while also allowing our shops to have more accurate viewpoints into inventory at other locations. This is especially important as we open shops in existing markets.”

“RFID tags and related IoT devices make it possible to confirm the information of each product being carried out of the store.”

- TYLER HIGGINS, AARETE

## FASTER CHECKOUTS WITH RFID-ENABLED TECHNOLOGY

Retailers around the world are moving toward smart checkout systems: the Accenture Strategy RFID survey noted that **46%** of respondents plan to adopt such systems within the next three years as a way to deal with their top business pressures. “RFID adopters will have a leg up on their competition in implementing these technologies as a result of the detailed data from RFID and real-time trackability of individual product,” wrote Accenture’s Jason Sain and Andrew Wong, authors of [Transforming Modern Retail: Findings Of The 2018 RFID In Retail Study](#).

Cashierless stores could be considered the ultimate in smart checkout systems, and RFID technology can play a part in these implementations. However, RFID’s role is likely to be limited by a number of factors. While current cashierless stores have been small-format locations selling convenience and grocery items, RFID has traditionally been used more for apparel and accessories, which carry higher price points and have fewer technological barriers to obtaining clear readings, such as metal containers.

### Decathlon Leverages RFID To Expedite Checkout

At its flagship high-tech store in Emeryville, Calif., **Decathlon** has extended its use of RFID technology into a quick checkout system linked with a mobile POS provided by **NewStore**. Baskets containing items to be purchased are placed in a kiosk that reads all the RFID chips sewn into the products simultaneously.

“Providing faster checkout is great for a store like ours, where we do a lot of high-volume purchases,” said Ashley Benson, Product Manager at Decathlon USA. Since implementing the faster checkout in April 2019, Benson has noted customer satisfaction improvements from being able to load and check out an entire cart in seconds.

“We have a lot of big families coming into our store and they may buy 20-plus products, so if the kids are screaming and the parents just want to get out, they are happy to check out so quickly,” said Benson.

Currently, associates handle the checkout for shoppers, but “we are working on a self-checkout system that would utilize the same technology,” Benson reported. The RFID system also is tied into Decathlon’s inventory solution, so that items that are purchased are automatically taken out of that store’s inventory.

“RFID helped us get to the cashierless stores of today, but as the concept continues to expand, it will be on the back of more innovative AI and machine learning platforms.”

- TYLER HIGGINS, AARETE

“RFID tags and related IoT devices make it possible to confirm the information of each product being carried out of the store,” said AArete’s Higgins. “But RFID and IoT devices still have a cost component, so they are most applicable for high-dollar items. Retailers can best use these technologies by identifying a combination of technological deployments including RFID, and determining where the extra security from RFID is needed compared to AI observation systems that do not need tags.

“RFID helped us get to the cashierless stores of today,” Higgins added. “But as the concept continues to expand, it will be on the back of more innovative AI and machine learning platforms that can drive improved management at a lower cost.”

“With smart tags that incorporate product info, SKU numbers and pricing changes, ‘touching’ a product to initiate a markdown will be eliminated.”

- KEN MORRIS, BRP CONSULTING

## RFID'S NEXT USE CASE: SMART TAGS

It's clear that RFID already has played a major part in the successful execution of omnichannel offerings. Among the RFID adopters surveyed by Accenture, **96%** offer at least one omnichannel capability, and **83%** offer at least three. Among non-RFID adopters, the figures are **59%** and **24%**, respectively.

Now, retailers that have invested in RFID are seeking additional use cases — and finding them. The technology, under the broader umbrella of IoT, is itself advancing: Morris noted that “smart tags” capable of accepting price changes distributed from a centralized system could eventually replace current tags.

“Any time you can avoid ‘touching’ a product, you will save time and labor,” said Morris. With smart tags that incorporate product info, SKU numbers and pricing changes, “touching” a product to initiate a markdown will be eliminated. “A retailer could just broadcast that ‘All Polo items are 20% off,’ and at checkout the tag will read the new price,” said Morris.

The Accenture study's authors note that **80%** of global retailers surveyed believe RFID's benefits cannot be replicated by other technologies, writing: “RFID is here to stay and will continue to play a critical role in enabling retailers to take the next step in their transformation to compete in today's demanding marketplace.”

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