

RFID TECH GUIDE:

TIPS FOR HARDENING
SUPPLY CHAINS,
STREAMLINING LAST MILE
AND ENABLING BOPIS
AND CURBSIDE PICKUP

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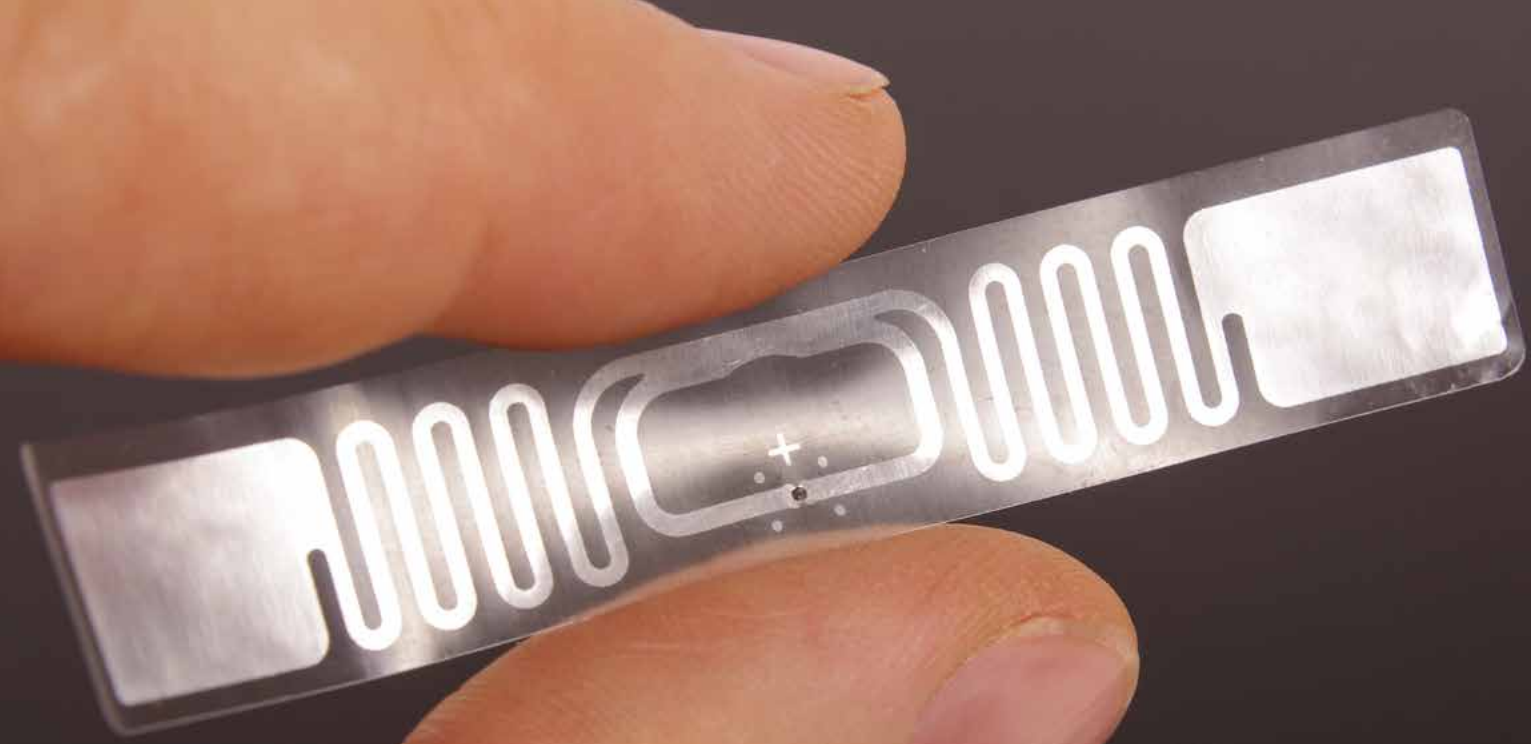
INTRODUCTION

The current inventory crunch has revealed the downsides of just in time (JIT) supply chains, but that doesn't mean retailers need to "fatten up" with excess inventory that may or may not sell. Smart use of RFID technology can enable fast communication across the entire enterprise to create a system with more slack than JIT, but without incurring unnecessary costs from overstocking inventory.

"Sales and operations planning teams have [reexamined] safety stock levels given the production and supply crunch that has been exacerbated due to port blockages," said Gaurav Joshi, Director in the Retail and Supply Chain Practices of **AArete** in an interview with *Retail TouchPoints*, adding that "these retailers are not used to doing concurrent planning across the organization, from sales to demand management and from inventory to supply management. By having access to accurate inventory positions through use of market-leading supply chain tools such as a supply chain control tower, **it will allow retailers to find the right balance between a resilient supply chain and a lean supply chain and thus reduce the overall inventory carrying costs.**"

Additionally, while global supply chains are top of mind for retailers right now, implementing RFID solutions also can provide a number of internal benefits for both warehouses and stores, while improving the experience for shoppers. Key applications of RFID technology include:

- **Hardening the supply chain against unexpected challenges:** Knowing when and where every item is at any time lets manufacturers and retailers ensure all inventory is accounted for and helps them get it to the right place on a macro level, to avoid stockouts when unexpected shortages occur;
- **Enabling delivery from anywhere, to anywhere:** RFID can help retailers overcome the labor shortage by making the last mile process more accurate and streamlined, saving valuable time and enabling more flexible delivery staging processes;
- **Creating a more efficient and positive omnichannel experience:** Few retail experiences are as frustrating as being told an item is in-stock only to find the shelf empty upon arrival at the store, but RFID provides the accuracy to make this a problem of the past; and
- **Improving in-store operations:** Sharing accurate information on where things are, where they need to go and when deliveries can be expected can make the job easier for associates, while also helping retailers combat shrink.



RFID HELPS HUNT DOWN MISSING ITEMS ACROSS THE SUPPLY CHAIN

RFID has applications addressing multiple aspects of the complex relationships among manufacturers, wholesalers and retailers, providing a common data set that all parties can work from. For example, passive UHF RFID enables retailers and manufacturers to get serialized “identities” down to the item level, which can lead to a number of benefits.

This type of upgrade can come naturally, particularly for companies that are already tracking serialized case codes, according to Justin Patton, Director of the [RFID Lab at Auburn University](#). If their warehouse management systems (WMS) are able to track serialized item inventory as well as these case codes, companies can move to tracking on the individualized item level. Patton noted that this level of granularity is still a work in progress for many WMS, but the benefits are huge.

The technology “can completely change the conversation on claims,” which is important at a time when receiving every item in a given order is extremely important. Patton offered the example of a product order that was **20** items short: “If there is no serialized data, the conversation kind of ends there — the manufacturer just has to take the customer’s word for it and pay it,” said Patton in an interview with *Retail TouchPoints*. “With passive UHF RFID, the manufacturer has a serialized record of each item sent. So if a retailer is missing something, they can say ‘we received all these serial numbers, but we’re missing these other 20 serialized item IDs.’ Now we have a language for communication for claims. **It changes the game and gives the manufacturer and the retailer specific targets to hunt down the missing items. We’re looking for units, not just guessing at inaccuracies.**”

Better inventory tracking also can benefit retailers closer to the point of sale. Knowing exactly what they have in their warehouses enables retailers to maximize available product closer to the stores with the greatest demand, without the risk of creating shortages elsewhere.

“What some of the leading retailers have done is that they have started relying on RFID, whereby they tag all products with RFID and then either use a handheld device or a drone to complete the inventory counts in the warehouse,” said Joshi. “While there is an upfront cost associated with RFID, its use has increased the inventory accuracy and reduced the cycle time. This real-time and accurate inventory position in both the warehouse and stores allows the right allocation of product to the right locations in the right quantities. **It also allows rebalancing inventories across the entire enterprise to reduce the overall cost to serve.**”



Photo: IDENTIV

BETTER TRACKING LEADS TO FASTER FULFILLMENT ORDER STAGING

The high costs of the last mile are well known, but now the labor shortage is making time an even more precious commodity as well. Planning and staging the day's deliveries is a time- and labor-intensive task, particularly when shoppers are being offered flexible delivery windows. These can complicate processes by adding additional departure times for trucks and by drawing out preparation times when, for example, new orders come in at the last moment.

Because RFID provides an efficient way to confirm which items are in a particular delivery order (i.e. without needing to visually inspect them), the technology can streamline pick-and-pack processes at both warehouses and stores. This functionality reduces the need to place last mile deliveries in a specific order.

"Leading retailers such as some top home improvement companies have to manually sort through products to ensure that they are lined up for their last mile partners to load onto their delivery trucks or vans," said Joshi. "This utilizes a large portion of the warehouse space, and last mile delivery companies have to load them in using a first-in last-out philosophy based on the schedule for the day." However, because packers can always "scan and identify the products with the RFID tags, **using RFID allows them to become more efficient in terms of scheduling these products, as well as being more flexible in loading the trucks without being completely tied to the delivery schedules,**" he added.

Retailers can look to the airline industry for further inspiration. Airlines such as Delta utilize passive UHF RFID for checked baggage, which lets them monitor the order in which bags are loaded onto a plane and track missing pieces with handheld devices — a process that could easily be carried over to loading up trucks for deliveries.

"I can see this model working almost identically for last mile," said Patton. "If we RFID scan inventory onto the delivery truck, we can answer a lot of questions automatically. Was everything loaded on the truck? Is anything on there by accident? Where is it on the truck? Where is that missing package? All of these things would help with speed and efficiency for last mile delivery. **If we know what we have and we can find it, we can be very accurate on loadouts and delivery.**"



RFID PROVIDES A POWERFUL TOOL AGAINST OUT-OF-STOCKS

Customers can benefit from RFID even if they never directly interact with it. In particular, the improved inventory accuracy can ensure the information they find on the website actually matches what is available in-store, which has always been a tricky task. Providing associates with reliable inventory counts also can improve the in-store experience, adding another layer of protection against out-of-stocks.

“One of the main reasons a customer leaves the store without making a purchase is out-of-stocks, and RFID can be used to verify that there is no stock on the shelf but there is stock in the back room,” said John Harmon, Senior Analyst at **Coresight Research** in an interview with *Retail TouchPoints*.

“Prescriptive analytics platforms can send a message to a store associate to move the inventory to the shelf, saving the sale and keeping the customer satisfied.”

This level of inventory accuracy is particularly important given the continuing expansion of BOPIS and curbside pickup. Retailers are dividing one set of inventory across what amounts to multiple fulfillment channels, which can make it extremely difficult to keep track of how much is available in any or all of them. RFID greatly simplifies this process and lets retailers pass this knowledge onto customers before they place an order.

As a safeguard against out-of-stocks, retailers set up their inventory systems with minimum thresholds for functions such as BOPIS. “For example, [retailers] need to have this shirt, and there need to be **15** [in stock] for it to be shown as available on the website for BOPIS,” said Robin van Stenis, Director of Global Marketing at **Nedap** in an interview with *Retail TouchPoints*. “But if you have RFID that threshold can be **two or three**, because you will be able to guarantee that the items are actually in-store. If you’re not using RFID the items might be missing, might be stolen or might be miscounted. **So there are discrepancies that are fixed when you start using RFID.**”



HOW RFID IS CHANGING THE WAY RETAILERS LOOK AT SUPPLY CHAIN VISIBILITY

By Oscar van den Broek, Managing Director at Nedap Retail

Investments in RFID inventory tracking enable retailers to offer a flexible ecommerce fulfillment model and allow them to proactively manage inventory. And with consumers resetting the expectations of fulfillment to fast and convenient, the COVID-19 pandemic marked a dramatic acceleration of the importance of supply chain visibility. Because of this, retailers cannot make fulfillment promises to their customers without an accurate view of their inventory. In the meantime, consumers also are becoming increasingly aware of the far-reaching implications of how they shop, consume and dispose of everyday items.

In response to these shifts in consumer behavior, retailers and brands now need to break down their inventory silos and create a single view of stock across their entire supply chain. The best way to do this is by tracking every unique item's movement throughout the supply chain and collecting data in a cloud-based inventory repository, whether it's in-store, at a distribution center or through loss prevention efforts. This enables businesses to keep track of every single item using RFID technology, from the moment it leaves the production factory to the exact moment the item is shipped, sold or returned. This enables perfectly matching demand and supply anywhere and at any time.

Knowing what is in stock and where items are located at all times throughout the supply chain has become essential. This is the primary reason why one of the world's leading athletic performance brands, Under Armour, decided to use Nedap's iD Cloud RFID-based inventory visibility platform.

By achieving a higher level of inventory visibility with RFID tracking, as well as more tightly aligning its demand and supply planning functions and continuing to make investments in channel-agnostic technology, Under Armour intends to deliver a seamless customer experience. In addition, the company intends to leverage RFID to make stronger data-driven decisions to drive more profitable sell-through across its retail enterprise. "We don't see RFID as a 'nice to have,' we see it as vital to bringing the retail experience to the next level." said Bob Neville, VP of Global Retail at Under Armour.

The demand for sustainability from consumers is present throughout the supply chain. They want to know that the products they are purchasing are not having a negative impact on the environment before they reach their homes.

According to Tendam, one of Europe's leading omnichannel fashion retailers, RFID is the key enabler toward a fully transparent supply chain, allowing for full item traceability from source to consumer. Tendam is implementing Nedap's iD Cloud platform in all 1,222 stores.

Inventory visibility and accuracy allows retailers to lessen their total stock holding while still selling more, which works alongside allocating products to stores that need them and lowering safety thresholds. Lowering safety thresholds increases digital merchandise availability and gives the product more chances to sell.

While the industrywide challenge of inventory excess is no secret, few know the best course of action to solve it as there are several reasons the excess can occur. Some of the key contributing factors include lack of visibility into what is present in stores, wanting to have the right product readily available to customers and insufficient retail store processes. Luckily, RFID can and does help retailers minimize excess.



RFID CAN MAXIMIZE MARGINS AND MINIMIZE SHRINK WITH ACCURATE INVENTORY DATA

Many of RFID's large-scale benefits also apply on a more granular level at stores. Increasing store-level inventory accuracy enables retailers to "sell down to the last item, which helps protect pricing," said Harmon.

AArete's Joshi cited **Macy's** as an example of how powerful RFID investments can be for improving margins. The retailer increased its inventory accuracy to **95%** and reduced stockouts by **50%** as a result of its investments. "Using RFID for inventory management is a low-effort undertaking, and given the minimal change management effort required on the part of the employees, it makes it an attractive option to explore," said Joshi.

Empowering associates this way also makes them feel like they have a larger stake in the company. Occasional overnight inventory counts can be frustrating, particularly when they uncover low accuracy levels, and equipping them with RFID tools can both speed up the process and give the associates a sense of ownership.

"When you give them this technology, not only the technology to do the count more accurately but to give them visibility into that information, they start to take real responsibility for that inventory accuracy and they actually start managing it," said Kris Doane, Senior Account Executive at **AsReader** in an interview with Retail TouchPoints. "I've had people say, 'My title's been an inventory manager, but I've never managed inventory before RFID. All I was doing was counting stuff and being frustrated because we didn't have the things that we needed.'"

Another store-level benefit is preventing shrink. RFID can triangulate with other sensors in the store to help determine when and where theft is happening, which makes it easier to target corrective actions.

"RFID is also very useful for loss prevention," said Harmon. "Sensors can monitor whether goods are leaving via the front or back door, enabling retailers to coordinate this information with video footage to track shoplifting and employee theft. RFID can also be used to verify that incoming goods match the invoice."

Enabling the combination of RFID with other technologies, whether cameras or WMS, across the entire enterprise — from the biggest warehouse to the smallest store — is one of the key reasons to make the investment. RFID tools are powerful and versatile, and the technology's ability to enhance operations across the entire ecosystem means virtually every retailer can find a way to benefit.



Photo: AsReader

WHY MOBILE TECHNOLOGY WILL OVERTAKE LEGACY MACHINES

By Paul Whitney, COO and Vice President, AsReader, Inc.

Dedicated barcode scanning machines provide only one function.

Retailers know that in-store staff and workers throughout the value chain are required to do many different tasks and that they cannot afford to carry a separate device for each one. Barcodes are usually limited to reading less than 20 characters and must be scanned individually within line of sight. RFID can handle several thousand characters and capture hundreds or even thousands of tags per second at a distance.

Instead of being anchored to these legacy machines, leverage the smartphones and mobile devices that your employees already use with an RFID attachment. Reduce your overall cost and maintenance by reusing the computing power already available, improve your staff performance with a wider range of capabilities at their fingertips, and take advantage of the interface they know and are trained to use efficiently.

According to the Pew Research Center, in 2021 more than 90% of millennials (ages 25 to 40) own smartphones or other mobile devices. That number is even higher with Gen Z, currently ages nine to 24, at 95%. This new retail and logistics workforce is powered by mobile technology and requires very little onboarding, training and education when they use their RFID-powered mobile devices.

With a smartphone and an RFID reader attached, users have both more freedom and the tools required to reach peak performance. For example, when a package is received, the user can read the RFID tags inside without even opening the container, record their signature and submit pictures of any potential problems all within one application using one combined device. This improves speed and accuracy, reduces human error by eliminating double counting and increases both process compliance and job satisfaction — all at the same time.

In one instance, a store in the U.S. was closed for an entire day while 15 people worked for 11 hours to conduct a count of 30,000 items spread across two floors, a total of 165 hours of labor. With an RFID-enabled smartphone, it took one person just two hours to count the same store while it remained completely open. Only two hours versus 165 hours of labor, discreetly performed with better accuracy and no downtime — the ROI is abundantly clear.

If you are attending NRF, please visit AsReader at booth 527.

LEARN MORE...



Nedap is a global leader in RFID-based retail solutions with over 10,000 stores connected to its iD Cloud platform. Nedap helps retailers achieve perfect inventory visibility with zero waste and no losses. iD Cloud simplifies multi-store retail and supply chain management using RFID and gives retailers real-time item-level insights into their stock levels and the exact location of each item. Using these real-time insights, retailers can be more agile, offer customers a better omnichannel shopping experience and increase sales. To learn more, visit www.nedap-retail.com.

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AsReader®

AsReader, Inc. manufactures barcode scanners and RFID readers/writers that attach to mobile devices. Parent company Asterisk, Inc. was founded in 2006 by Noriyuki Suzuki, with offices in Osaka, Nagoya and Tokyo, Japan; Dalian and Shenzhen, China; Rotterdam in The Netherlands and Portland, Oregon. Clients include large retailers M&Co, Tokyu Hands and Aoyama; manufacturing retailers Toyota, Kawasaki and Otsuka Shokai; over 300 hospitals worldwide; and a well-known transportation/logistics company with more than 30,000 AsReader devices in use. AsReader products are certified in the USA, EU, Japan, China, Australia, Nigeria, India, Brazil and more.

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