Reconsider RFID: A Re-emerging Technology That Is Bringing New Life to Digital Business

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Summary

RFID technology has evolved significantly since its debut decades ago, and the applications are compelling for digital business. Retail CIOs should reconsider the use cases for RFID, and identify how it can improve execution in the unified commerce marketplace and create a competitive advantage.

Overview

Key Findings

A positive customer experience is becoming a differentiator in the shopping process.

Store associates are struggling with in-store execution of critical cross-channel processes, such as buy online, pick up in store (BOPIS)/click and collect.

Advancements in RFID technology and the drop in the price of tags have caused retailers to reconsider RFID deployments.

Retail CIOs who fail to find a solution to improve overall execution and maximize cost optimization will potentially incur lost customers and revenue, as well as lose competitive advantages.

Recommendations

Retail CIOs:

Conduct an operational and customer journey review to identify activities that take significant amounts of time for store associates or customers.

Cross-check the journey review findings with your digital roadmap for opportunities to leverage RFID to improve inefficiencies in activities and opportunities to converge with other technologies already included on the roadmap.

Partner with the head of multichannel, chief customer officer and store operations to consider the multiple ways RFID can enhance the experience for both customers and associates — for example, reducing inventory cycle times and inventory accuracy.

Plan a small pilot to trial RFID to test the improvements identified for store execution and the overall customer experience.

Analysis

Radio frequency identification, or RFID, has an interesting history dating back to World War II, where radio frequency was used to identify ally or enemy aircraft, [1] and, today, is becoming a key element in the retail wars.

After years of RFID being a dismissed technology, the convergence of technology now enables RFID for utilization beyond the supply chain to improve critical channel execution and create cost-saving opportunities for retailers. Historically, RFID implementations have been a challenge for retailers, due to the primary use limited to supply chain, maturity of the technology and the overall costs, specifically the tag expense. The actual technology for RFID has improved over the years, including increased detection ranges, elongated battery life, increased data storage capacity, reliability and better integration with sensors. The expense for RFID tags, once a significant deterrent, has greatly improved. Pricing is based on the specific capabilities of the tag and, certainly, volume ordered, but RFID tags can be as low as $0.05 to $0.15 and up, depending on tag type. Adoption of RFID will continue to reduce prices, and some retailers, where applicable, reuse tags for greater cost efficiency.

Retailers' focus today consists of creating a unified commerce experience across all their existing channels of web, mobile and stores, as well as positioning themselves to incorporate maturing selling channels like social and the Internet of Things. The new "digital business" paradigm is propelling retailers to respond to the convergence of technologies, like mobile internet, cloud technology, social networking, RFID, 3D printing, robotics and advanced analytics. These shape how customers shop to support their lifestyles and demand the blending of the digital and physical worlds.

Simply creating a unified commerce capability is not the endgame. Even now, as information on pricing and product availability is so readily available to customers, the overall customer experience is, and will continue to be, a differentiator. Competitive advantage, let alone survival, will no longer be determined by traditional transactional metrics. Instead, the retailers who emerge as leaders will deliver to a customer-led, service-oriented strategy that supports the overall customer lifestyle.

As retailers work to integrate their existing and new technologies, and plan for emerging technologies, execution across shopping channels continues to be a challenge for many retailers. Many are looking for ways to improve the common challenges of inventory accuracy, locating products, accurate product availability, optimal assortments and returns management across channels. Retailers will continue to remain focused on cost optimization and overall financial efficiency. With store labor as one of the largest expenses, retailers will continue to identify ways to maximize productivity while maintaining the customer and associate experience. Achieving the balance between efficient channel execution and resource investment — both tools and human capital — is difficult.

Retailers should reconsider RFID capabilities, and to understand how an investment in RFID can be used to decrease the time associates spend on tasks, improve inventory optimization and contribute to an overall better customer experience.

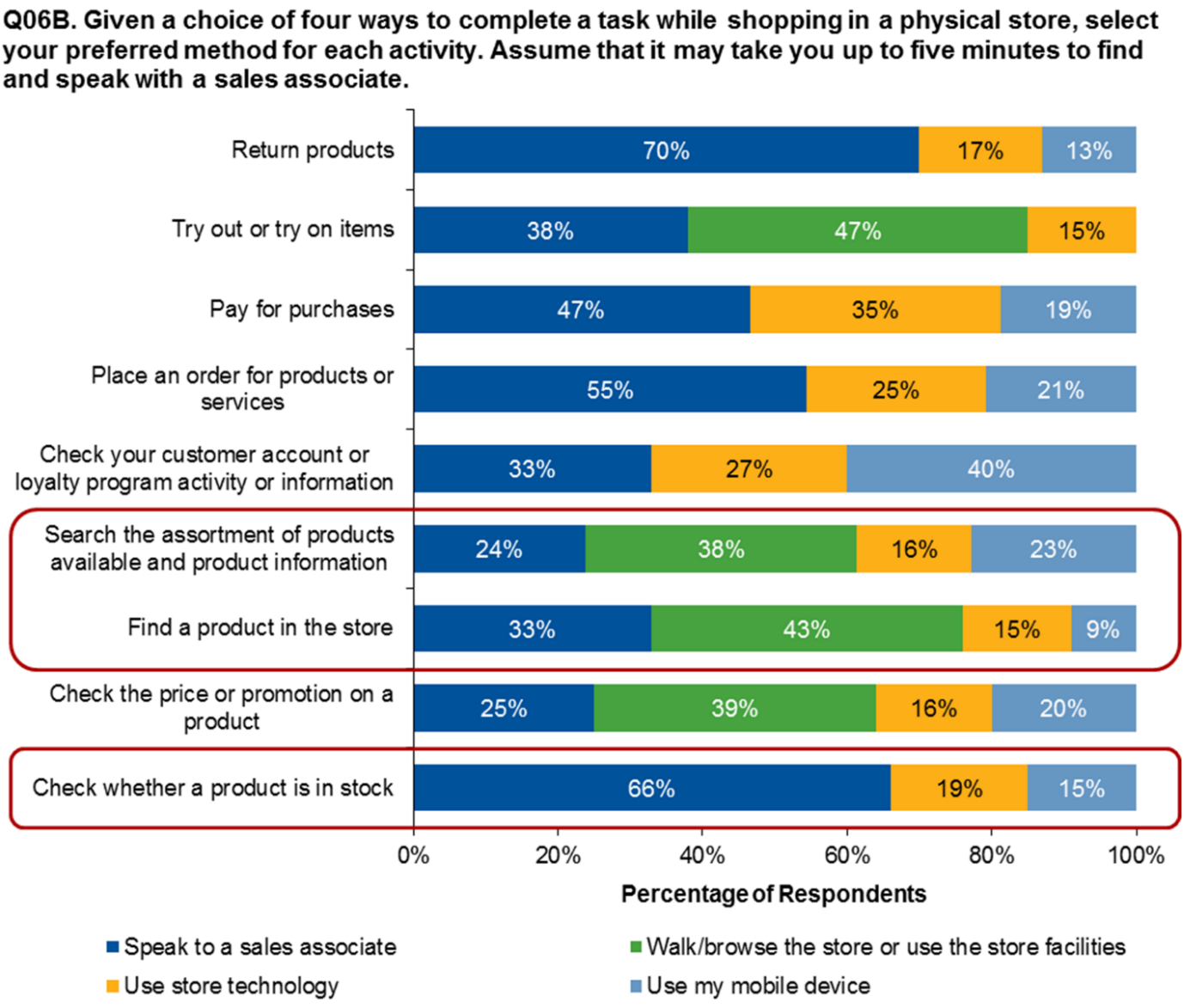
Improving the In-Store Experience

Gartner's 2015 Consumer Survey captured preferred methods for completing various tasks while shopping in a physical store, choosing between speaking to a sales associate, walking or browsing the store, using store technology, or using their own technology. Gartner surveyed 5,054 consumers in five countries worldwide (U.S., U.K., India, China and South Korea). A

nationally representative distribution for gender and age groups was targeted. More details about the survey methodology can be found in the Methodology section. While Figure 1 reflects the current preferred method, it also illustrates the opportunity to leverage RFID.

RFID has the ability to locate retail products just as easily as it once used to locate war planes. In Figure 1, 76% of total respondents currently wander the aisles (43%) or require help from an associate (33%) to find a product in a store. Additionally, to check whether a product is in stock, 66% require the aid of an associate. Lastly, when searching an assortment of products available and product information, 62% of consumers either need an associate (24%) or browse the store (38%). All of these activities can be time-consuming and frustrating for both customers and associates. RFID has the potential to reduce the time needed for associates to complete tasks and quickly locate products, both contributing to a better customer experience.

Figure 1. Preferred Method for Completing a Shopping Task



n = 5,054

Source: Gartner (September 2016)

RFID Applications and Retailer Use Cases

These findings suggest each of the above tasks could be conducted faster using RFID. The applications for RFID for in-store execution, as well as improved decision making at the corporate level, are numerous. Each use has clear individual benefits, but coupled, can result in a significant impact within a retailer's multichannel ecosystem.

Locating products — Being able to locate a product is essential in retail. Oftentimes, current inventory management metrics will show an item is in stock, but it can be impossible to actually find it to complete the sale. Retailers like Zara, [2] Target and Levi Strauss & Co. all have been publicized for leveraging RFID to create visibility to products.

Levi's [3] well-documented RFID pilot allows associates the visibility of products throughout the store, even when in a dressing room. For denim, this allows their stylists to quickly be able to find a specific size, style and color for a customer, which can be daunting, given the large assortment Levi's offers.

In-store pickup — Target [4] has leveraged RFID to assist associates in finding products ready for in-store pickup. As use of BOPIS/click and collect continues to increase, RFID could prove to save time searching for the items and ultimately save the sale.

Store fulfillment — Retailers that are leveraging their store network inventory to fulfill online orders certainly are realizing the financial benefits of flexible fulfilment. However, the process to pick, pack and ship a product can be laborious, and often, the dedicated teams spend significant time searching the floor for ordered products. Locating a product becomes increasingly challenging in larger stores or when items are not in their planned location. RFID can quickly help locate specific products and expedite this activity. Additionally, if integrated with task management and wayfinding capabilities, the most efficient path can be determined to eliminate crisscrossing the store.

In-stock visibility/replenishment/reduced out-of-stock — Aside from locating products, this application for RFID is critical. RFID enables retailers to have accurate inventory visibility to current inventory in the store, with the ability to understand if it is available on the shelf or in the backroom. This line of sight to inventory can ensure that items are replenished to the selling floor quickly and are available to customers. Additionally, coupled with point of sale (POS), RFID can prompt replenishment from the stockroom to the selling floor, and ensure store-level replenishment occurs long before an item becomes out of stock.

Returns management — Centralized returns management is critical in a unified commerce environment, because many online orders are returned to the physical store. Regardless of sale origination, visibility to returned merchandise allows for quicker resale if a customer is trying to locate that specific item.

Inventory management — RFID provides for nearly 100% accurate, real-time inventory information. Retailers like Zara have been working with RFID for years to improve inventory accuracy. Inventory cycle counts are a labor-intensive activity for retailers, often requiring extra labor hours, and can impact regular store selling hours. Zara reported that, as early as 2014, it had increased its inventory counts from twice a year to every six weeks.

Shrink/loss prevention — Inventory is one of the largest cost of operations for a retailer. Given the ability to know where inventory is, RFID allows retailers to understand where it isn't all through the supply chain to the selling floor. Coupled with loss prevention (surveillance) technology and POS, RFID allows real-time tracking of products and can determine whether they

are leaving the store without being purchased. Conversely, should a stolen item attempt be returned, the item can be identified as stolen. American Apparel [5] has previously reported experiencing an average reduction in shrinkage of 55% and as high as 75%.

Safety and product recalls — The ability to locate a product using RFID, while convenient, can be absolutely critical should the item be identified as unsafe. Marks & Spencer [6] — a trailblazer of RFID — started with tracking fresh food products in 2001 and progressed to tracking their general merchandise. With RFID on all products, this ability allows Marks & Spencer to act quickly should a manufacturer recall a food product or other merchandise for safety reasons.

Self-check-out — RFID, if applied to all products, can easily support self-check-out and allows a customer to simply leave the store with his or her desired goods. Last year, the Uniqlo [7] clothing brand began a program to use RFID to allow customers to check out instantly. With RFID tags, the items are instantly read all at once, instead of individually, reducing the time in half in some cases.

Other smart technology (such as mirrors, kiosks and beacons) — With the convergence of technology, RFID is a tiny tool that can serve as the connector between the customer and the retailer. For example, Burberry [8] has used RFID-tagged merchandise to allow customers to interact with mirrors that can detect the article and provide interactive content on how it is made and product detail, and offer additional product suggestions. Additionally, retailers can track RFID-tagged items through the store as a customer shops, providing behavior analytics like dwell times and traffic pattern information.

Analytics — RFID can contribute a plethora of data, which can be analyzed to improve execution activities and inform decisions at a higher level. Leveraging the item activity information as the product travels around the store can provide merchandisers, assortment planners and allocators better insight into optimal assortments. The real-time analytics provided by RFID will enable associates to quickly react to in-store activity and do what is needed to support the overall customer experience.

RFID has multiple uses to support in-store execution and provide an enhanced customer experience, as well as resulting in tangible benefits for retailers. Additionally, as the costs for the RFID tags have greatly reduced over the years, the cost of implementation should be reconsidered with the hard benefits.

Recommendations

Conduct an operational and customer journey review to identify activities that take significant amounts of time for store labor or customers.

Cross-check the process review findings with your digital roadmap for opportunities to leverage RFID to improve inefficiencies in activities and opportunities to converge with other technologies already included on the roadmap.

Partner with the head of multichannel, chief customer officer and head of store operations to consider the multiple ways RFID can enhance the experience for both customers and associates — for example, reduce inventory cycle times and inventory accuracy.

Plan a small pilot to trial RFID to test the improvements identified for store execution and the customer experience. For example, start by using RFID to help associates locate items needed to complete click-and-collect orders and measure overall speed improvement. Additionally,

completed orders could use RFID tags for ease of locating once the customer is at the store for retrieval.

Evidence

[1] B. Violino, "The History of RFID Technology" (http://www.rfidjournal.com/articles/view?1338) RFID Journal, 16 January 2005.

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[3] D. Alaimo, "Levi's RFID pilot seeks near 100% inventory visibility," (http://www.fierceretail.com/story/levis-rfid-pilot-seeks-near-100-inventory-visibility/2015-09-22) FierceRetail, 22 September 2015.

[4] "RFID and AIDC News: Target Stores Latest to Jump on Item-Level RFID Bandwagon," (http://www.scdigest.com/ontarget/15-05-20-1.php?cid=9310) Supply Chain Digest, 20 May 2015.

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[6] C. Swedberg, "Marks & Spencer Expects to Achieve 100 Percent RFID-Tagging by 2017," (http://www.rfidjournal.com/articles/view?13028) RFID Journal, 11 May 2015.

[7] "Fast Retailing to adopt smart tags for swift self-checkout," (http://asia.nikkei.com/Business/Companies/Fast-Retailing-to-adopt-smart-tags-for-swift-self-checkout) Nikkei Asian Review, 5 May 2015.

[8] See Burberry's discussion of how it uses RFID (https://us.burberry.com/legal-cookies/privacy-policy/rfid/) .

Methodology

A large-scale consumer retail shopping study was conducted from 5 November 2015 through 21 December 2015 to help Gartner understand consumer trends on use and adoption, or attitudes about different technologies that enable shopping across selling channels and in the retail store environment. The survey also sought to explore how these trends are evolving and to compare and contrast country, gender and age group differences.

Gartner surveyed 5,054 consumers in five countries worldwide (U.S., U.K., India, China and South Korea), establishing country quotas to ensure at least 1,000 complete responses in each country. A nationally representative distribution for gender and age groups was targeted. The sample universe was drawn from a number of external consumer panels.

Qualified participants were at least 18 years old and have access to the internet. The interviews were conducted in the respondents' native language.

The final results were weighted to be representative of each country's total population aged 18 to 74 by age group and gender to correct for any biases in the results introduced by different proportions in the sample. During fielding, we ensured that a minimum quota per region and by income group within each country was reached to capture a nationally representative sample. Hard quotas on online user profiles obtained from a prior Gartner survey in emerging countries were implemented. Sample selection is done randomly in the panels' databases.

The survey was developed collaboratively by a team of Gartner analysts who follow the retail market, and was reviewed, tested and administered by Gartner's Research Data Analytics team.

Disclaimer: Total results do not represent global findings and are a simple average of results for the targeted countries in this survey. While the country-level data is weighted to mirror the online population distribution for demographic variables, the data is *not* weighted to mirror the size of each market or meant to represent the world at large.
