

UP TO SPEED AND INTO THE FUTURE: MODERNIZING RETAIL TECHNOLOGY

By deploying advanced technologies to work together in the storefront, retailers can better understand their consumers and enhance those shopping experiences.

EXECUTIVE SUMMARY

Retail businesses face stiff competition from every direction. A key strategy in winning this competition is to develop the means to become more relevant to customers. Retailers do this by understanding consumers and developing deeper relationships with them. This is where the latest technologies are helping retailers even the score.

Innovative retailers are taking advantage of a wide variety of technologies: mobile devices and apps, interactive kiosks and digital signage, sophisticated beacons and wireless networks, as well as easier, more secure payment systems. Retailers have long sought to use technology to improve the way they do business, but recent innovations revolutionize the relationship between merchants and their customers.

But deploying the latest technologies is not enough. Retailers need to establish robust IT infrastructures to support the latest technologies, and they must integrate them so they work together seamlessly. Armed with a modern storefront and powerful back-office support, retailers are finding they can do more than just compete — they can thrive.

What Does It Mean to Modernize the Retail Environment?

Over the past 3 years, the retail industry has been reinvented. Some observers have claimed that brick-and-mortar stores are dead, but reality tells quite the opposite story. Advancing technology has emerged as the fundamental change agent in the retail sector. Smartphones, ubiquitous computing, social networking and web-based digital processes have transformed the retail landscape, enabling rapid innovation from merchants hoping to thrive in the new environment.

Of course, technology has long affected the way retail, restaurant and hotel operators do business, but the current wave of technology innovation does something truly profound: It revolutionizes the relationship between merchants and their customers. And this doesn't just apply to large organizations that can afford to deploy enterprise customer relationship management (CRM) and other enterprise solutions. Merchants of any size can leverage off-the-shelf technologies and cloud-based services to enable customer experiences that rival or exceed those of the largest national brands. Among the potential benefits:

- Streamlined point-of-sale engagements that reduce wait times and support both fixed and mobile/roaming transactions
- Flexible payment options, including chip-and-pin credit cards and device-based mobile payment services
- Superior customer service from staff equipped with networked tablets
- Ready online access to product information, including in-store availability and recommendations for nearby store pickup for items out of stock
- Personalized customer marketing outreach and access to store loyalty programs

Even as technology allows smaller outfits to compete with large chains, it enables brick-and-mortar storefronts to compete with web-based competitors that are increasingly numerous, sophisticated and successful. That's an important capability, as online purchases are expected to account for more than 10 percent of all retail sales in the U.S. by 2017, according to [Forrester Research](#). At the same time, the web is strongly influencing in-store purchases. By 2017, store purchases that involve some element of web research are expected to reach \$1.8 trillion, up from \$1.2 trillion in 2012, also according to [Forrester](#).

For merchants, the web emerges as both opportunity and threat. Shoppers increasingly are conditioned to expect store-bound retailers to provide the same, digital-driven services they receive online. And with 68 percent of U.S. consumers shopping online at least once a month, according to a [recent Walker Sands survey](#), the imperative to deliver those services is strong.

There are plenty of opportunities for brick-and-mortar outfits. The Walker Sands retail study found that limitations affecting product shipping and returns remain top motivators for

shoppers who choose to make purchases in stores rather than online. A retail modernization effort that allows for same-day pickup or ship-from-store (shipping from local stores direct to the end-user), or product returns to any company store, can win over web-savvy shoppers.

Optimizing Retail Technology

Modernizing retail involves a lot more than deploying some tablets on the sales floor. Store management must understand how hardware, software and services interact with day-to-day business activities. Newly deployed technologies must be tuned to work efficiently with existing systems, from in-store networks and point-of-sale systems to back-end software and supply chain solutions. Among the things to keep in mind:

- **Commit to integration:** Tying new technologies to existing back-end systems and networks can be tricky. IT departments should make sure to account for hardware and software integration early in the process, as these concerns will affect procurement, deployment and other decisions.
- **Budget for customization:** IT decision-makers should account for the time and cost of custom development required to stitch together new and old solutions. They must consider also that they may have to pay for integration services, as well as the cost of system and software testing in the process.
- **Focus on customer data:** Solutions that capture and analyze customer data in real time can yield major gains; for example, driving cross-selling and up-selling opportunities at the point of sale or enabling pinpoint marketing based on customer preferences.
- **Stay secure:** Security issues and practices must be accounted for at every step. Strong encryption, robust user authentication, vulnerability assessment and employee training are all critical. IT leaders should talk up front with vendors and service providers about security concerns.

The imperative is that retailers take a strategic view. Technologies should be implemented in a way that ensures new and deployed systems work in concert, enabling a seamless flow of data that powers automation and improves the customer experience. This type of approach will yield greater benefits than piecemeal technology deployments.

Technologies of the Modern Retailer

To make retail modernization work, management must grasp both the goals of the effort and the component technologies that drive it. Solutions such as mobile point of sale (mPOS), in-store beacons, digital signage and integrated software enable retailers to deliver rich, customized services seamlessly across all channels, be it in the store, over the web, or via email, text and phone.

On a strategic level, technology deployments can equip merchants to engage in clienteling, the practice of leveraging gathered data about customer activities, purchases and



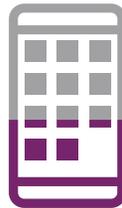
The percentage of sales associates in stores who say they have access to customer data

preferences to transform the merchant–customer relationship. Retail outfits that deploy clienteling solutions can offer deeply personalized service and interaction to customers, and see welcome gains as a result. More frequent shopping visits, higher transaction values and improved loyalty all accrue in clienteling scenarios.

It sounds good in theory, but most retailers struggle to identify and engage their most valuable customers, according to a [2015 survey by Yes Lifecycle Marketing](#). Just 36 percent of surveyed merchants say they leverage purchase history data to personalize customer interactions.

A retail modernization project can address these gaps and transform hidebound brick–and–mortar stores into web–savvy shopping destinations. Getting there requires work on a number of fronts, including:

- **Mobility:** From mPOS to consumer–facing mobile apps, mobile enablement is a core point of value for modern retail operators, yielding major benefits across the retail, hospitality and restaurant sectors.
- **Security:** Every aspect of the modernized storefront — from hardware and software to network components — must be hardened against intrusion and attack to protect assets and preserve consumer confidence.
- **Interactive kiosks and digital displays:** Interactivity maximizes opportunities to engage with customers and enable compelling self–service experiences with in–store kiosks and digital signage.
- **In–store tracking:** Beacons and Wi–Fi tracking solutions



43%

The percentage of retailers that leverage social media for customer service

allow retailers to communicate with customers' smartphones as they move through a store. These solutions also leverage RFID technology to streamline inventory operations.

- **Payment systems:** The economy is moving past magnetic credit cards. Chip–and–pin EMV credit cards and smartphone–based payment systems provide secure and flexible transactions for customers.

Mobile Technologies

Mobilizing brick–and–mortar stores goes beyond engaging customers on smartphones and tablets. It involves updating existing networks, point–of–sale systems, staff support assets and back–end software to enable end–to–end mobility. From the instant customers enter a store to the moment they complete their purchase, seamless, in–store mobility transforms the merchant–customer relationship to provide a rich, streamlined experience.

The foundation of any mobile retail effort is a robust wireless network. Modernized retail environments need ample network bandwidth to support traffic from customer smartphones, in–store mPOS systems and tablets, digital signage and store beacons, and a variety of other sources.

Wi–Fi networks based on the 802.11ac specification provide performance that exceeds that of many wired Ethernet network deployments, while ensuring compatibility with older devices. It's vital that network assets are carefully managed and configured, with strong encryption and user authentication enabled on all

Inside Clienteling

Clienteling is a growing practice that leverages technology investments in mobile point–of–sale (mPOS), customer relationship management and in–store service and inventory systems, extending them to create a holistic engagement with customers. According to the [Luxury Institute](#), companies that develop a robust relationship with customers can see sharp gains in data collection and customer retention, most notably among the top 20 percent of customers that typically drive the majority of sales.

The benefits are hard to argue. [Research from Retail Touch Points](#) indicates that customers in clienteling scenarios spend nearly four times more annually than non–clienteled customers, and are one–third more likely to return as repeat customers.

To achieve these gains, retail operators must bring several distinct technology

- **Big Data:** Clienteling is a data–driven process that leverages prompt and sophisticated data analysis to glean patterns and target opportunities.
- **Order taking:** Rich mPOS terminals that incorporate recommendation engines empower sales agents to take advantage of cross–selling and up–selling opportunities, while omnichannel systems provide a seamless, store–branded customer experience, from initial product research to final purchase and beyond.
- **Mobile apps:** Branded apps for smartphones and tablets put merchants in direct contact with customers and enable online commerce, improved customer service, loyalty programs and interactive marketing.
- **Inventory management:** Knowing what you have and how to get it to customers is essential to a successful clienteling program. The ability to arrange pickup or to cross–ship out–of–stock products from nearby stores can prove a valuable asset.



access points. All network gear should be checked to ensure the latest firmware is installed for security and operation.

From there, merchants can roll out mobile services and technologies, including:

- Mobile point-of-sale systems
- Networked tablets for staff
- In-store public Wi-Fi service for shoppers
- Wireless beacons for customer tracking and interaction

mPOS systems allow sales staff to complete transactions anywhere — in a store aisle, at a sidewalk restaurant table, even in the line leading to fixed point-of-sale (POS) terminals — a practice called line-busting. Shorter wait times, improved customer satisfaction and greater flexibility combine to make mPOS one of the fastest-moving trends in the retail sector. Sales of mPOS solutions reached \$7.8 billion worldwide, according to a 2014 IHL Group study. From 2014 to 2019, [ABI Research projects](#) that the number of installed mPOS devices will increase fivefold, to 51 million.

mPOS solutions are comparatively affordable and easy to deploy, making them a strong, early candidate for a retail

modernization effort. Solutions typically consist of a smartphone or tablet running mPOS software, a Bluetooth-connected or plug-in payment scanner/reader module and a Bluetooth printer. Tablet-based hybrid mPOS solutions feature a docking module and fixed printer, allowing the tablet to be used as a fixed or mobile POS.

Security Focus

How important is security in a retail modernization effort? A [study by Javelin Strategy and Research](#) shows that instances of credit and debit card fraud in the U.S. increased threefold from 2013 to 2014. About 31.8 million U.S. cardholders had their accounts breached in 2014. High-profile malware attacks on payment systems exposed tens of millions of customers' credit cards and produced losses in the billions of dollars. Retailers are marks, and security must be a top consideration.

Sound security practices must be adopted at every stage of a retail modernization effort, including:

- Wireless and wired network deployment and configuration
- Deployment and configuration of POS systems
- Comprehensive training of users in security policies and practices
- Robust access policies
- Formulation of data retention policies that minimize risk of customer exposure
- Regular security audits and reviews, including third-party penetration testing

Merchants in the U.S. are uniquely at risk. The U.S. has been slow to move away from vulnerable magnetic-strip cards, which elsewhere have been replaced by more secure, chip-based EMV cards. As a result, the U.S. accounts for a disproportionate amount of credit and debit card fraud cases globally. Research by Barclays found that while the U.S. accounts for 24 percent of total worldwide card volume, it is responsible for 47 percent of the world's card fraud.

In-Store Engagement

The retail environment is being transformed by sensing technologies, intelligent displays and interactive kiosks. Merchants can deliver customer-tailored messaging and services that promote purchases and improve the overall experience.

Wi-Fi and beacon tracking: Merchants can leverage two technologies to detect and track shoppers as they move through the store: Wi-Fi and beacons. Wi-Fi-based sensing relies on special wireless access points to track Wi-Fi-enabled devices such as smartphones. The location data they capture can be used, for example, to activate an LED display as a shopper approaches or lingers nearby. These solutions can collect valuable traffic data to provide insight into how many shoppers visited a store, where they lingered and how long they shopped. Solutions such as the Aruba Analytics and Location Engine make it possible to crunch this data, providing valuable insight.

More compelling are low-cost beacon solutions that use the Bluetooth low energy (BLE) standard to locate, identify and communicate with shoppers' smartphones. Beacons can enable

What Does EMV Mean for Retailers Today?

When the deadline for EMV adoption in the United States passed on Oct. 1, 2015, it did so with the majority of U.S. retailers having yet to deploy chip-and-pin card readers. In fact, a survey just before the deadline by the [Strawhecker Group reported](#) that only 27 percent of U.S. merchants were set to deploy EMV-ready readers by the deadline. Retailers cited the cost and complexity of the switch among the top obstacles they faced.

What's at risk for retailers who haven't made the switch to the more secure EMV system for onsite charges?

- **Financial exposure:** Noncompliant merchants assume the burden of liability previously borne by issuing banks. Retailers that accept fraudulent charges will have to cover the costs themselves.
- **Industry sanction:** The Payment Card Industry Security Standards Council may levy fines against noncompliant businesses. Ultimately, merchants could lose PCI accreditation, making it impossible to fulfill credit card transactions with many processors.
- **Heightened fraud risk:** As more stores move to EMV, fraud activity will increasingly target noncompliant merchants.

For those still deciding whether or not to deploy EMV, it's important to understand the risk environment. Some retailers, such as supermarkets, gas stations and pharmacies, are more prone to attract fraudulent credit card payments. Challenging magnetic credit card holders to present a driver's license can help deter fraudulent charge attempts. But with the monthly number of reported fraudulent transactions rising every year (from an average of 80 per merchant in 2012 to 156 in the first quarter of 2015), putting off EMV compliance represents a significant risk.



a personalized environment for repeat customers who agree to accept text messages or install a merchant's app on their phones.

Beacons are small, inexpensive (typically under \$100) and can run for weeks on integrated batteries. Growth in the sector is rapid, with ABI Research projecting that about 60 million beacons will be sold in 2019.

Software is a vital component of a beacon deployment. Beacon providers often have their own solutions, including software development kits that allow merchants to stitch beacon functionality into stores' existing mobile apps and link to existing CRM systems and loyalty programs. Merchant solution providers also often provide beacon-based software functionality.

Digital signage and interactive kiosks: Digital signage inhabits a fast-growing market that [research firm IDC expects](#) to more than quadruple in size over five years, from \$6 billion in 2013 to \$28 billion in 2018. Merchants are taking note, replacing traditional print signage with affordable, networked LED displays that create a dynamic and personalized retail environment.

Offering important benefits over static, print displays, digital signage:

- Supports dynamic content and messaging that can be updated quickly
- Displays compelling graphics, animation and video
- Presents promotions to nearby shoppers, triggered by in-store Wi-Fi and beacon services
- Provides a space for in-store advertising, creating a new revenue stream for merchants

At the same time, merchants are deploying interactive kiosks to maximize the retail environment. Like signage solutions, kiosks can present dynamic content to shoppers, but they excel in their ability to directly improve customer service while lowering operating expenses.

Declining costs and improving touch-screen and display technologies are combining to drive deployment of kiosk devices in stores, hotels and general customer service environments. A [study by Research and Markets](#) projects that interactive kiosk sales will increase significantly from 2014 to 2019. Self-service kiosks enable numerous benefits:

- **Space savers:** In retail storefronts, every square foot counts. Kiosks are compact, yet effective, allowing shoppers to explore products, find directions, make payments and more.
- **Instant gratification:** Delays and wait times are key drivers of shopper dissatisfaction. Point-of-service kiosks encourage shoppers to stay in a store.
- **Low overhead:** Kiosks boost store capacity without increasing employee headcount.

Payment Progress

Secure, chip-based EMV credit and debit cards and readers — widely used in Europe for years — are gaining ground in the U.S. At the same time, mobile payment solutions such as Apple Pay

leverage ubiquitous smartphone ownership. Merchants are supporting emerging payment options both to improve service and security.

EMV cards: Credit cards based on the Europay, MasterCard, and Visa (EMV) standard close the vulnerability present in cards with a magnetic strip, which contains static data that can be easily copied and used for fraudulent charges. Chip-based EMV cards produce a unique code at transaction, making them an effective defense against in-store fraud. In Europe, [point-of-sale fraud rates](#) after EMV adoption dropped 24 percent between 2007 and 2011. In Canada, card skimming losses dropped from \$142 million to just \$38.5 million in the first year after the EMV switchover.

EMV cards require merchants to deploy POS modules that incorporate a chip reader. Rather than swipe, customers insert EMV cards into a chip reader slot, which prompts the on-card chip to produce a unique transaction number for the POS system. Currently, most transactions in the U.S. use a chip-and-sign process, meaning that users provide a signature to authorize

the charge. As payment processors update their systems, chip-and-PIN transactions, in which users enter a four-digit PIN at the point of sale, may become common.

Contactless payments:

Contactless payments based on short-range, Near-Field Communications (NFC) wireless technology let shoppers pay for goods

by waving or tapping a device at an NFC-equipped payment reader.

The market for in-store mobile payment is growing fast. [Research from Business Insider](#) indicates that these types of payments will leap from \$1.8 billion in 2013 to \$189 billion in 2018. Driving this is the proliferation of NFC-equipped smartphones, rising from 275 million units shipped in 2013 to 1.17 billion shipped in 2018. Shipments of NFC-capable payment terminals is likewise projected to rise sharply, from 5 million in 2013 to 18.1 million in 2018. In the U.S., NFC terminal adoption is happening concurrent with POS system deployments supporting EMV-style cards.

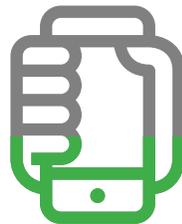
For merchants, mobile payment offers distinct benefits compared with credit and debit card transactions:

- Reduces the need to handle and protect customer data
- Shortens transaction time
- Enables a personalized experience and loyalty scheme integration

Benefits of Modern Retail Technology

Technology solutions can have a transformative effect on retail operations, enabling new services, streamlined operations and improved customer relationships. The list of benefits goes on and on: increased sales, faster transactions, happier customers, lower costs.

Just as important, technology enables merchants to face down emerging challenges. Many brick-and-mortar stores compete not only with the shop down the road, but with web



40%

The percentage of consumers who used a mobile payment application in 2014, up from 8 percent in 2013

commerce outfits offering free shipping, as well as with national chains armed with vast inventories and a robust web presence.

A retail modernization effort equips retailers with the tools they need to thrive in competitive environments.

Customer Comes First

From the customer perspective, technologies such as mPOS stations, interactive kiosks and networked tablets can greatly improve store operations. Gone are long lines at checkout and the frustration of waiting for a staffer to return from the back room with information about product availability. Questions get answered more quickly, thanks to merchant software that gives staff insight into available inventory and customer preferences. The result: Stores provide better, faster service to customers than ever before.

The payoff is evident in a 2014 study by Omnico Group, which found that 77 percent of U.S. shoppers are less likely to return to a store that subjects them to long lines at checkout.

Technology deployments improve service by making the

merchant–customer relationship more personal, more targeted and more intelligent. In–store beacons, for instance, can inform proprietors when repeat customers step in the door, and deliver targeted messages to shoppers' smartphones. A shopper who purchased shoes at a store in the past can receive a text message or in–app alert about a shoe sale, just as he enters the shoe section of the store.

The Omnichannel Effort

Many retailers are working to expand in–store technology initiatives to support omnichannel retailing, extending the customer relationship beyond the confines of the store, hotel or restaurant. By providing a seamless experience across web, phone and store, retailers can capture sales that might otherwise go to web competition.

Enabling omnichannel interaction with customers takes more than setting up an e–commerce web site. It is founded on an interactive relationship that takes place digitally over email, mobile, text, mobile app and web, including via social networks. Consistency across these channels is critical. Customers must get the same answer — quickly — to a question, whether they ask it in a store, on the phone, during a web chat session or in an email message.

The [2015 Omnichannel Retail Index report](#) from the National Retail Federation emphasizes that retailers interact with customers across five touchpoints. They are:

- Online product research and purchase
- Email and loyalty program interaction
- Product delivery
- In–store return of items purchased online
- Accessing customer service

By integrating diverse channels with a unified back–end software infrastructure, a well–planned technology migration can enable compelling, omnichannel interaction with customers.

Situational Awareness

The customer–facing benefits of a retail modernization effort have their roots in data. Modernized merchant systems establish a flow of information that informs decisions, improves customer interaction and enhances efficiency. By capturing and leveraging information about purchases and behaviors, merchants can develop a true, 360–degree view of the customer relationship. Among the benefits:

- Development of personalized communications and promotions that reflect the interests of customers, as evidenced by their purchases and searches
- Engagement in cross–selling and up–selling based on recent purchases
- Optimized interaction using customer–preferred communication channels
- Employment of analytics to target marketing and promotions to individuals and groups of customers

The ability to store, manage and analyze large and diverse flows of information — some of it streaming in real time — requires a specific toolset. Maturing technologies such as NoSQL databases and the MapReduce and Hadoop frameworks

The ABCs of PCI DSS

The Payment Card Industry Data Security Standard (PCI DSS) is designed to ensure effective security practices around the handling of cardholder data. Merchants that accept credit or debit card payments must comply with PCI DSS guidelines, including passing regular audits, or face sanctions. These guidelines scale in relation to the size of the merchant organization. For instance, merchants processing more than 6 million transactions per year face the highest level of scrutiny and must pass quarterly network scans and validation by a qualified security assessor to retain PCI DSS compliance. Among the broad control objectives defined by the standard:

- Build and maintain a secure network
- Protect cardholder data
- Maintain a vulnerability management program
- Implement strong access control measures
- Regularly monitor and test networks
- Maintain an information security policy

Encryption of customer payment data is a core requirement of PCI DSS compliance. Merchants must ensure that this data is immediately encrypted upon capture by the point–of–sale system, employing a PCI–certified P2PE Security Solution that transmits the encrypted data to the payment gateway or processor for decryption. The process ensures that customer data is never transacted in the clear across store local or wide area networks.

The [PCI Compliance Guide site](#) provides detailed guidance on PCI DSS compliance and how merchants can pass periodic assessments under the standard.



are enabling cost-effective Big Data solutions and opening opportunities for retailers to apply data analytics as a result.

The same data flows that improve customer service and relationships also drive the processes that define a retail business. Integration of order taking, inventory, fulfillment and shipping systems allows companies to gain full awareness of their assets, whether they are in a warehouse, on the shelf or en route to the customer. Technologies such as RFID, for example, use radio tags and sensors to streamline and improve tracking of individual parts and products.

The benefits are numerous. Access to real-time inventory data means that everyone in the company works from one version of the truth, from the sales associate in the store to the shipping manager in the warehouse to the purchase officer in the back office. A sales associate in one store can use a handheld tablet to search inventory and fulfill a sale by sourcing an out-of-stock item from a nearby store.

Implementing Modern Retail Technology

Technology has long been a fixture in restaurant, hotel and store operations, but the pace of change, and the depth of impact on the business, has never been more profound. The promise of deeply integrated systems, mobile-enabled in-store interaction and omnichannel fulfillment and communication are offset by the challenge retailers face in achieving it.

What areas are retailers targeting with modernization efforts? Three areas come to the fore:

Mobile Payment: Apple and Android Lead the Way

Mobile payment services are emerging after a series of early false starts. Apple in October 2015 launched its Apple Pay system in the U.S., while Google and Samsung have rolled out payment schemes of their own.

Apple Pay: This service boasted support at about 700,000 locations at launch. It works with all iPhone 6 and newer Apple smartphones, as well as with iPhone 5 when paired with an Apple Watch. It requires an NFC-equipped POS reader and uses fingerprint scanning for authentication.

Android Pay: Android smartphones running the Android 4.4 KitKat operating system or newer can employ this service; however, only a fraction of these phones are NFC-equipped, shrinking the available market share. It requires NFC-equipped POS readers, and a PIN may be needed for authentication.

Samsung Pay: This service works with newer Samsung smartphones, including the Galaxy S6 and Galaxy Note 5 families. It is a dual-mode system that works with NFC-equipped terminals, as well as with traditional magnetic strip readers, by producing a magnetic secure transmission that can be picked up by the strip reader. Samsung Pay works at some 300 million retail locations.



Analytics: Retailers are no stranger to analytics. They've relied on data and reporting for decades to optimize inventory, drive pricing decisions and assess sale and store performance. Now the speed of analysis is accelerating, so that decisions that once took months can be made in weeks, days, even hours.

More to the point, new technologies let merchants answer questions they couldn't even ask until now. Wi-Fi- and beacon-based customer tracking, for example, enables merchants to visualize traffic in stores and assess the efficacy of in-store promotions by analyzing how often and how long shoppers linger at displays. From back-end software to storefront devices, retailers are working to sharpen the data they collect, analyze and use.

Omnichannel effort: Online commerce continues to grow by leaps and bounds, as evidenced by a [MasterCard Advisors report](#) on the 2015 holiday shopping season. E-commerce sales were up 20 percent over 2014, while total retail sales rose 7.9 percent. Merchants aim to capture the shifting sales by enabling a consistent and seamless shopping experience across store, web and mobile devices. Likewise, customer support activities such as product returns must be supported across channels, so a purchase made online can be returned to a store without hassle.

Achieving this goal is easier said than done, and often requires that retailers break down operational silos and unify Internet and physical retail operations on a single, back-end infrastructure. This can require custom software development to tie systems together.

Brand enhancement: Merchants always seek to enhance their brand. Sales associates armed with tablets and smartphones, streamlined check-out via handheld mPOS and digital signage that responds to approaching customers all add value and impact to the shopping experience.

Steps to a Successful Modernization Effort

A big technology rollout sounds great — until something goes wrong. [J.C. Penney in 2013](#) aimed to transform the checkout experience by removing traditional POS systems in favor of sales associates armed with handheld mPOS devices. But shoppers couldn't figure out where to pay for goods. Worse, J.C. Penney staffers dressed in graphic T-shirts and designer jeans — a recent initiative — weren't readily identifiable. Associates asking shoppers if they wanted to check out were often met with suspicion. Additionally, the company's Wi-Fi networks were unable to handle the additional traffic created by mobile checkouts. Amid a 25 percent decline in sales, the company adjusted its mPOS approach, adding rolling payment carts and signage explaining check out procedures.

To ensure technology deployments go as smoothly as possible, it's important to consider a few key points:

Develop a vision: Retailers should begin modernization by establishing a long-term, visionary strategy, then narrow the focus by prioritizing elements of the strategy. All stakeholders should be represented, from marketing and sales management to inventory and IT.

Value due diligence: Success depends on a thorough assessment. IT leaders must fully understand the existing

infrastructure and work with customers and staff to scope out needs and obstacles.

Consider a partner: Retail systems are part of a niche sector with very specific issues, challenges and dynamics. Proven industry experts and service providers can anticipate challenges, map out approaches and deploy robust solutions.

Build on the foundation: Dropping technology on top of existing systems is a risky proposition. IT staff should assess and update the core infrastructure – from networks to back-office software – to ensure that incoming solutions are compatible.

Focus on quality: Technology deployments are an investment, and a critical one. Merchants that deploy cheap hardware to shave cost risk having solutions that don't improve operations.

Respect the process: Technology forces change in existing processes, both in the back office and in the store. IT leaders

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should map out current processes and understand how these may have to change to work with new technology.

Proceed with caution: Many retailers avoid problems by rolling out technology in phases. They start off slowly with test deployments and address any problems that arise before engaging in full-scale deployment across all store locations.

Maintain training: Customer-facing initiatives can fail if sales associates and other staff aren't fully vested. Retailers should provide ample training time for staff to ensure that customers receive an optimal experience.

CDW: A Retail Partner That Gets IT

Emerging shopping platforms and services promise to help retailers open the door to new customers in both domestic and global markets while building stronger and deeper bonds with existing customers. Yet a bewildering maze of new technologies prevents many retailers from adding essential new systems and services – technology that will enable them to compete and thrive in a rapidly changing retail environment – while upgrading their existing infrastructure.

CDW is ready to help retailers approach the new shopping revolution and transform exciting new technologies into a tactical advantage. From inventory management and other back-end systems to mobility platforms, storefront technologies and customer experience solutions, CDW provides retailers of all sizes with the integrated solutions and services necessary to attract new shoppers, expand engagement and drive revenue. The retail revolution has started. Don't get left behind.

The CDW Approach



ASSESS

Evaluate business objectives, technology environments, and processes; identify opportunities for performance improvements and cost savings.



DESIGN

Recommend relevant technologies and services, document technical architecture, deployment plans, "measures of success," budgets and timelines.



DEPLOY

Assist with product fulfillment, configuration, broad-scale implementation, integration and training.



MANAGE

Proactively monitor systems to ensure technology is running as intended and provide support when and how you need it.

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