Reengineer, Restructure, and Revamp Retail with Mobile Data Capture Technology
INTRODUCTION

Retailers with brick-and-mortar store locations face unprecedented challenges and need to innovate quickly to compete for customers and revenue. Omnichannel enablement is becoming more critical to secure revenue growth and brand loyalty. At home, on the go, or in the store, customers seek instant gratification from every shopping experience. Customer expectations of the retail experience have undergone dramatic shifts, especially as their exposure to a variety of different platforms and brands increases. Each innovation provides highly differentiated offers and experiences that soon become the norm. With thousands of store closures already planned, the need to revamp the customers’ in-store buying experience and increase operational efficiency is stronger than ever. While optimizing the customer experience may be a critical determinant in generating brand/retailer loyalty, retailer profitability is also prompting businesses to look at new ways to increase employee efficiency, provide increased visibility across the supply chain, and lower costs.

The convenience of shopping online has resulted in significant declines in foot traffic at store locations, dramatically impacting traditional retail chains. E-commerce sales are growing at tremendous rates as compared to physical stores. However, brick-and-mortar retail still accounts for over 90% of overall revenues. Despite that, retailers are feeling the pressure to reverse the trend, especially across those retail store formats that are currently struggling (e.g., department stores, apparel chains, etc.). The end goals are to ensure that customers with an intent to purchase actually convert and to mitigate (even eliminate) the possibility of sales abandonment. In-store inventory accuracy levels lag at about 65%. As a result, retailers face unwanted situations including chronic out-of-stocks, overstocks, limited on-shelf availability, and lack of visibility into backroom inventory. In turn, these situations lead to a drop in customer satisfaction and serviceability levels. While materials management, logistics, and the last-mile delivery aspect of e-commerce operations have seen some recent innovation, the same is not true for the retail store.

From VDC’s perspective, retailers have historically been very reluctant to make significant changes to their brick-and-mortar operations. That is now changing, especially as they look to mimic the online experience in the physical stores. Traditional retailers are increasingly looking to fundamentally restructure and reengineer their footprints, which has them embracing omnichannel concepts. The ultimate goal is to bring the efficiencies and experiences associated with e-commerce to physical in-store environments, which also comes by way of positioning the store as a showroom or fulfillment center. Amazon.com’s Amazon Go concept highlights the growing interest in converging online and offline shopping experiences, as do Walmart’s recent acquisitions of e-commerce enterprise ModCloth and online-driven men’s clothing retailer, Bonobos. We discuss these examples later in this white paper.
The role of the physical storefront is changing to one that focuses just as much on customer service, order fulfillment, and returns management as the online sales channel. Retailers need to direct a significant portion of their capital expenditures towards solutions that improve order management (including returns), inventory visibility, and delivery. Customers are increasingly opening up to the idea of in-store activity/journey tracking and mobile-push notifications if these lead to better deals. Retailers also feel the need to help their employees transition their job requirements from focusing on purely handling transactions to additionally undertaking customer experience management, click-and-collect (or buy online, pick up in store) order fulfillment, cross- and up-sell enablement, and inventory tracking. To accomplish this, retailers are placing a higher premium on training and empowering sales associates to ensure that they are qualified to address customer requirements with technology enabling the same. Retailers are ramping up their mobile device investments to not only bridge the gap between shoppers’ online and brick-and-mortar experiences, but to also enable cross-channel fulfillment opportunities.

VDC’s recent primary research with retail executives and operations personnel on omnichannel retail capabilities indicates that the pressures associated with improving in-store inventory accuracy, enhancing overall shopper experience and engagement, and offering a competitive response to e-commerce enterprises are driving retailers’ technology infrastructure investments, including those in mobile solutions. Retailers are increasingly making an effort to align their customers’ in-store and online shopping experiences by enabling mobile data capture (like barcode scanning). Rising deployments of and interest in consumer devices for enterprise use within retail has accelerated the need to enable enterprise-grade barcode scanning in order to future proof retailers’ device investments and address challenges

Exhibit 1: Factors Impacting Retail Business and Ability to Address

(1=Not a Critical Issue; 7=Extremely Critical Issue)
(1=Not Well Addressed; 7=Extremely Well Addressed)
Scandit, a mobile barcode scanning solution specialist, leverages its competence in enterprise software application development and deployment on consumer smart devices to empower retailers with end-to-end solutions that will assist with their digital transformation objectives. The company endeavors to have its solutions fit into today's Bring Your Own Device (BYOD) environment, which also helps retailers eliminate or minimize the need for mobile device-specific training, as employees are extremely familiar with these devices and their operating systems. In addition, Scandit's mobile data capture technology has evolved to the point where it is augmenting, and in some cases even replacing, dedicated barcode scanners in the retail industry. The Scandit Flow platform, which is web-configurable for both iOS and Android, enables the rapid development, deployment and lifecycle management of a wide range of data capture applications for smartphones and tablets, leveraging the solution provider's SDK (Software Development Kit). With this, Scandit offers application capabilities ranging from clienteling and mobile point-of-sale (mPOS) to mobile order entry and inventory management, which are all essential to help retailers streamline in-store workflows and increase sales. With an eye on the future, the solution vendor has also recently released MatrixScan, a premium feature of its barcode scanner SDK, which makes it possible for retailers to use the cameras on consumer smart devices to capture data from entire walls of product in a single scan. This augmented reality feature helps identify issues such as incorrect product orientation, low inventory levels, out-of-stocks, and pricing inaccuracies while delivering this data to the inventory management system in real time.
Scandit in Retail – Exploring in-store technology investment themes
Offering a highly personalized shopping experience, based on customers’ purchasing preferences and sales histories, is only the beginning. As the digital and physical retailing worlds converge and give rise to a more interconnected, seamless environment, the need for solutions that help quantify and document customer expectations will rise. Scandit’s data capture solutions enable retail applications to measure customer engagement, offer cross- and up-selling potential, generate more in-store, online, and omnichannel sales opportunities, and improve overall brand loyalty.

Retail operations competencies
1. Retail sales associate enablement (leveraging the store associate as a source of knowledge)
VDC’s research indicates that interactions with knowledgeable retail sales associates directly translate to positive customer engagement. Equipping retail associates with mobile devices represents a critical investment for retailers driving innovation around in-store experience. Thirty-two percent of VDC’s survey respondents from a recent mobility solutions-focused study indicated their willingness to replace their traditional data capture device with a smartphone or tablet-based scanner in the next 12 months. In conjunction with other technology investments that connect the in-store shopper with the retailer’s back office/warehouse, mobile solutions help enhance overall operations and drive a greater personalized and interactive shopping experience. This process of clienteling is critical to helping employees establish better customer relationships by leveraging the power of data capture to seamlessly personalize the in-store experience.

Upscale retailers like Neiman Marcus and Nordstrom are actively using mobile omnichannel marketing to their benefit. It is becoming increasingly important to retailers to empower associates with content specific to the customers they are assisting. As a result, more retailers are considering and investing in mobile data capture solutions that align with their requirements from the standpoint of technical specifications, total cost of ownership, and applications.

Using Scandit’s Barcode Scanner SDK and Scandit Flow platform, retailers can equip store associates with mobile clienteling apps that provide quick and easy access to product information and inventory levels, as well as review customers’ shopping history. These tools also enable retailers to access in-store analytics to gain insight into employee performance and app usage. Scandit also supports mobile point-of-sale (mPOS) applications that enable retailers to equip associates with applications to complete customer checkout processes from anywhere in the store, scan loyalty cards, check inventory, offer instant discounts, and carry out price verifications.

The ALDO Group, a manufacturer and specialty retailer of fashionable men’s and women’s footwear and accessories, leverages Scandit to enrich in-store efficiency and customer service across 400 of its stores by streamlining the location and retrieval of items when they are requested at the front of the store. Through ALDO’s mfind app, powered by the Scandit Barcode Scanner SDK, front-of-store associates are able to scan SKU barcodes of items requested by shoppers to check inventory and price, and communicate this information to a back-of-store employee for quick retrieval. Store associates can stay on hand with customers to offer improved service and eliminate sale abandonment. Employees are also able to retrieve products swiftly from the back, resulting in greater customer experiences and higher value sales.

2. Customer experience enhancement (enriching the time customers spend in the store)
Mobile solutions are enabling retailers to elevate customers’ experiences. Retailers can now provide customers the freedom to shop as they choose, while also personalizing the experience with tools such as price checking, product look-up, and self-checkout. Retailers are rolling out customer-focused mobile applications and devices to provide seamless
experiences and to bridge the digital divide. As an example, Scandit’s solutions for mobile shopping applications enable retailers to reach customers at home by allowing them to scan barcodes of items that they may be running out of and add them to shopping carts, scan coupons for a purchase, and score points on loyalty programs. With the Scandit Barcode Scanner SDK, retailers can deploy self-checkout applications that enable customers to scan items as they shop, scan special offers, check out more quickly, and obtain access to in-store product information, reviews, and prices, all through a smartphone- or tablet-based solution.

The Container Store, a specialty retail chain supplying storage and organization supplies, leverages Scandit mobile data capture technology to enable customers at two New York City stores to shop at their leisure and not be concerned with carrying around their large purchases. The retailer’s NYC locations lend customers a number of store-issued iPhone 6 smartphones, protected by the Scandit Case (Scandit’s rugged sled case), that come pre-installed with The Container Store’s Scan and Deliver app. The result is a rugged barcode scanning solution that gives shoppers a unique and convenient shopping experience with goods delivered to their doorstep at the end of their shopping trip while generating greater sales for the store. Other examples include Japanese department store chain Tokyu Hands and Italian grocery chain The Coop Group, both of which utilize Scandit’s Barcode Scanner SDK in their respective customer applications to enable shoppers to interact with products while inside and outside of stores via their personal smartphone or tablets.

3. Inventory optimization (helping retailers boost in-store profitability)

As more retailers move to a seamless operating model, it is becoming increasingly critical to enable customers to place orders digitally and shorten the order fulfillment or procurement gap. Improving overall inventory accuracy and visibility is a critical objective of the digital transformation of the retail store. As previously mentioned, retail industry estimates (and sources like Intel Labs) indicate about 65% inventory accuracy or on-shelf availability rates in the store, which leads to regular out-of-stock and overstocking situations that eat into retailers’ profitability. Seventy-five percent of VDC’s recent mobile solution survey respondents also indicated inventory visibility as a key reason for scanning barcodes. Primary areas for retailer investments span unified distribution, omnichannel enablement, and customer engagement. VDC believes the focus on inventory management has increased manifold because of these initiatives. Retailers need to ensure that their stores are able to function more like warehouses and distribution centers in order to be profitable.

![Exhibit 3: Barcode Scanning Applications](image-url)
Several large retail chains like Adidas, Kohl’s, Macy’s, and Target, have announced broad-based technology deployment and initiatives to address in-store inventory-related challenges and opportunities. Retailers plan to expand mobile device deployment in their stores to support strategic goals around inventory management and visibility. Seamless integration with warehouse and order management solutions is critical to support application requirements, including visibility into not just the store’s back room, but across the entire supply network. With this supply chain transparency, retailers can begin to look at their stores as extensions of logistics and fulfillment centers, thereby enhancing the value of the real estate.

Scandit enables retailers to use mobile devices—smartphones, tablets, and wearables – equipped with their barcode scanning software and workflows to capture critical data using the built-in camera on these devices and seamlessly integrate with existing ERP, WMS, and order management systems. This helps employees save time in the ordering process, better manage stock inventory levels, and streamline overall processes, thereby generating operational efficiencies. Scandit’s Flow is a cloud-based software platform to rapidly build, deploy, run and manage cross-platform mobile data capture solutions. It offers mobile frameworks and backend services, embedded barcode scanning and data capture capabilities, device and user management, application distribution and support for Scandit Case. As part of Flow, Scandit offers templates for stock taking, receiving, order entry, proof of delivery, etc. as customizable accelerators for development. The vendor has also launched an app-based scanning solution, Keyboard Wedge, which makes its camera-based scanning engine available without specifically integrating the same into existing enterprise software. Scandit’s ability to offer a customizable scanning experience with this product gives retailers a way to deploy barcode scanning and data capture with little-to-no disruption to their existing application infrastructure.

**Digital Store – the Interconnected New Reality**

Traditional brick-and-mortar retailers are now an integral part of the e-commerce ecosystem. Leading chains are in the process of allocating significant resources towards establishing an online presence with the goal of increasing the contribution of e-commerce as a percentage of total sales. Exposure to the e-commerce sales channel experience has customers demanding the same degree of personalization and assistance in-store. This includes tailored recommendations, reviews, and how-to guides. Retailers today face the challenge of declining foot traffic, with a 12% drop year over year during the 2016 holiday season, according to store analytics technology firm RetailNext. Several large chains, including Abercrombie & Fitch, Gymboree, JCPenney, Macy’s, RadioShack, Sears, and Staples, have announced broad-based store closings. At the same time, online sales continue to grow by double digits across the board. What does this mean for the brick-and-mortar retail store? Will online retailing be the only reality in the not-too-distant future?

From VDC’s perspective, the time is ripe for the retail store to transform into an experiential center powered by omnichannel technology. The narrative is no longer about physical vs. digital; it is instead evolving into one that takes the best of both to create a completely new, seamless shopping paradigm. While there is no “one size fits all” approach to address the challenges faced by retailers, recent industry developments could well pave the way for the future of brick-and-mortar retail.

One of the most interesting retail-related developments in recent months has been Amazon.com’s decision to go the brick-and-mortar route with its $13.7 billion acquisition of Whole Foods that essentially gives it an immediate position of strength in the grocery segment, which has been one of its weak spots. This comes with the intention of integrating virtual and physical retailing while also enabling omnichannel engagement and fulfillment. Prior to its acquisition of the grocery chain, Amazon.com announced the launch of its Amazon Go concept store. This aims to create a “checkout-
free” experience for shoppers by charging them as they pick up items from store shelves by relying on sensors and deep machine learning algorithms. The store allows customers to enter by scanning a 2D barcode on their mobile devices via the Amazon Go application. In-store infrastructure leverages the power of machine learning and computer vision with load scales, pressure sensors, and RFID technology to detect when a shopper takes items from the shelf and also syncs the data to the mobile device to create a digital receipt. The Amazon Go model also looks to reduce staffing requirements and checkout-related equipment investments, enabling real-time inventory assessment, and keeping track of customers’ shopping preferences. Amazon’s attempt to revolutionize the physical store comes with its unique set of challenges, especially with operating in uncontrolled environments (currently, the concept store is available only to Amazon employees on the Amazon campus) and questions related to scalability.

Amazon’s approach to digitizing the retail grocery store, as showcased by its Amazon Go concept store, may not be feasible for most retailers given the significant IT infrastructure investments (and overhaul) required. However, smart device-focused capabilities, like the ones offered by Scandit, can potentially prove to be a great (in-between) stepping-stone for retailers to consider, especially as they look to make meaningful progress towards building engaging and immersive stores of the future. VDC expects solution deployments on smart devices of customers, employees, and business partners to create the sought after omnichannel-enabled retail experience.

Walmart acquired e-commerce-driven apparel companies Bonobos and ModCloth in 2017 to fuel its online ambitions and to not lose market share and mindshare to Amazon. These moves, along with their 2016 acquisition of online retail platform Jet.com, boost Walmart’s online presence. They also serve to highlight Walmart’s efforts to close the gap between online and in-store retailing. This is further evidenced through Bonobos’ Guideshop concept, which essentially leverages stores’ physical presence as showrooms—displaying their full line of merchandise (along with sizing samples) while having customers work with styling assistants who can help make purchase decisions and then place the order online.

While the jury is still out on the success of new seamless store formats, one overarching theme resonates with both consumers and retailers alike—the strong need to bridge the existing gap between online and offline to deliver a seamless experience across channels. Today’s channel-agnostic customer is essentially looking for a consistent shopping experience. Adopting an omnichannel approach is, therefore, a necessary but disruptive proposition for retailers. Seamless operations require retailers to maintain and manage multiple supply chains and support networks. It is imperative to evaluate the profitability metrics associated with an omnichannel operating model, especially as an increased focus on selling across channels translates to higher order-fulfillment costs. However, a concerted effort to digitize the physical store and consolidate inventory systems can generate a compelling consumer experience resulting in greater dollars, especially if it brings with it sufficient differentiation and a meaningful change to in-store operations. Scandit’s endeavors to digitize the store leveraging smart mobile devices owned by customers, employees, or even retailers themselves will all help its clients create a more engaging shopping experience while helping them accomplish their omnichannel ambitions.

VDC’s research indicates that one of the leading contributors to a more engaging in-store experience is interacting with sales associates who have comprehensive product knowledge and the ability to access accurate inventory information in real time. Equipping retail associates with modern mobile solutions represents a critical investment for retailers looking to drive innovation around in-store experiences and create an environment that facilitates customer conversion. Retailers will greatly benefit from their mobile solution investments from the standpoint of enhancing operational efficiencies and customer support levels. The focus on enabling capabilities like personalized service, post-sale engagement, and in-depth product knowledge via these smart devices will directly contribute to customer satisfaction and sales.
ABOUT THE AUTHORS

**Richa Gupta** is responsible for VDC’s strategic research on the global markets for data capture technologies including barcode scanners and printers, as well as machine vision solutions among others. Data capture hardware vendors and solution providers leverage her expertise in the AIDC market for key market development initiatives, with the highly actionable data and insights helping formulate their long-term business strategies. She undertakes market opportunity sizing and forecasting, competitive landscape analysis, and strategic marketing assistance while also providing valuable thought leadership for this technology market segment. Richa holds a degree in Computer Engineering and an MBA from India.

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ABOUT VDC RESEARCH

Founded in 1971, VDC Research provides in-depth insights to technology vendors, end users, and investors across the globe. As a market research and consulting firm, VDC’s coverage of AutoID, enterprise mobility, industrial automation, and IoT and embedded technologies is among the most advanced in the industry, helping our clients make critical decisions with confidence.

Offering syndicated reports and custom consultation, our methodologies consistently provide accurate forecasts and unmatched thought leadership for deeply technical markets. Located in Natick, Massachusetts, VDC prides itself on its close personal relationships with clients, delivering an attention to detail and a unique perspective that are second to none.

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