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Digital Transformation 101: A guide to the new retail revolution

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DIGITAL TRANSFORMATION. It sounds like an event of massive proportions—and it is.

The digital retail revolution taking place right now is a complete business transformation, a radical reassessment of how retailers apply technology to add value, improve efficiency and drive revenue. It involves fundamentally rethinking models, processes and environments that touch every area of a retailer's organization, from supply chain to pricing to how a shopper gets her questions answered when she's browsing the aisles. Already, worldwide spending on digital transformation technologies is projected to reach almost $1.3 trillion in 2018, an increase of 16.8 percent over the $1.1 trillion spent in 2017.[1] In 2021, spending should nearly double to more than $2.1 trillion.[2]

Millennials are driving much of this shift. Weaned on technology, they expect digital conveniences to characterize almost every experience, including shopping. While traditional marketing vehicles like brochures and in-store ads may appeal to older consumers, millennials are plugged in to mobile and social shopping—not just for buying, but for making price comparisons, researching products and seeking others' opinions. In fact, millennials are more than twice as likely to believe that user-generated content is authentic (53 percent), compared with brand-developed content (25 percent).[3]

Aperion and EnsembleIQ have partnered to provide the industry with a common lexicon, best practices, and case studies shaping the digital retail experience. This comprehensive guide to digital transformation explores how it can help retailers serve consumers faster, offer more choices and increase efficiency across every business juncture, along with specific applications being used to enhance in-store, online and omnichannel shopping experiences.

TOP TECHNOLOGIES DRIVING RETAIL DIGITAL TRANSFORMATION

Digital transformation involves both new technologies and evolving technologies that did not exist in their current forms or applications. These technologies are providing levels of business connectivity, flexibility, process tracking and attention to detail that have never before been possible. In many cases, the technologies allow digital commerce to blur the lines between physical stores and e-commerce, creating seamless omnichannel experiences and opportunities.

The most important underlying technologies powering the current wave of retail innovation include:

Cloud computing

Cloud computing involves a network of remote servers hosted on the internet that store, manage and process data as an alternative to a local server or personal computer. Cloud computing can help reduce operating expenses because the cost of upgrades, new hardware and software can be included in the service provider's contract. In 2017, the global retail cloud market totaled $13.24 billion, and it is expected to hit $40.75 billion by 2023.[4]

Internet of things (IoT)

IoT relies on a series of wireless technologies to connect a variety of devices to an array of sensors or other equipment, allowing retailers to remotely monitor movement, performance and preferences of products, equipment and people, among other variables. The global connected retail market was estimated at $19.46 billion in 2017, with projections that it will skyrocket to $82.31 billion by 2025.[5]

Big data

Big data refers to the study and application of data sets that historically have been too large and complex to be adequately processed by traditional data-processing application software. Today's advanced data analytics tools, however, can automatically examine millions of varied data points ("big data") to uncover patterns, correlations, market trends and customer preferences in real time, helping businesses make informed decisions. The big data analytics market in retail is projected to be $9.01 billion by the end of 2023, up from $2.85 billion in 2017.[6]

RFID (radio frequency identification)

RFID uses radio waves, chips and readers to identify tagged objects. With fixed and/or hand-held readers, retailers can instantly access information on stock levels, expiration dates, model numbers, item location, color, size, manufacturer and other criteria. By 2023, the global RFID market is predicted to top $27.5 billion, rising at a rate of 14.1 percent CAGR (compound annual growth rate) from 2017-2023.[7]

Artificial intelligence (AI)
AI-enabled machines or systems utilize complex algorithms to sort through myriad data points. They imitate human behavior in intelligent ways—for example, allowing retailers to gather shopper insights in a predictive manner. That means retailers can evaluate and predict consumers' next actions based on both previous purchasing patterns and future responses to market trends. This year, retailers will increase AI spending on average by 7 percent, with leaders (retailers whose sales are growing at a rate of 5 percent or higher) boosting their IT spending by 20 percent or more.[8] By 2022, the overall worldwide market for cognitive/AI software platforms is forecast to approach $9.5 billion, at a CAGR of 36.7 percent from 2018-2022.[9]

CUSTOMER-FACING INNOVATIONS

When it comes to driving store traffic, price and product are key motivators. But turning shoppers into repeat customers can require much more, and that's where digital transformation is helping retailers make enormous strides both in-store and online.

Loyal shoppers want a superior in-store experience that includes being able to find products quickly, with assistance readily available if needed. They also want to avoid irrelevant promotions and slow checkout lines. These evolving technologies are enabling retailers to deliver a more streamlined and personalized experience for in-store shoppers:

Smart shelves
Smart (connected) shelves keep customers satisfied by making sure the items they're seeking are always in stock, alleviating lost sales. They help retailers measure shrink and manage costs through a wireless inventory control system that monitors quantities of products on shelves in real time. Associates and back-end systems are notified when product levels decline, a theft is detected or items are misplaced. Because employees can access stock information remotely via handheld devices, they are free to perform other tasks such as customer service.

Electronic shelf labels (ESL)
Electronic shelf labels represent a powerful, basic, digital shelf edge. A smart ESL system displays pricing on shelves but can also communicate with shoppers, employees and vendors. Typically, an ESL is attached to the front edge of retail shelving. The modules use electronic paper (e-paper) or liquid-

The AI advantage: Enhanced supply chain planning

Retailers traditionally have used historical data to forecast future demand in supply chain planning, but they weren't able to factor in current economic fluctuations, weather patterns and other variables. Because AI can constantly "learn," it can forecast according to current market conditions.

AI uses machine learning to combine a retailer's existing data with external information. The process is continuous, with AI looking to "see" which combinations of algorithms and data streams have the most predictive power for different forecasting scenarios. This endless loop constantly monitors and adjusts stock levels in real time.

Since it uses current data, AI allows retailers to match actual demand to alleviate under- or overstocking, both of which can cause revenue loss and fresh food spoilage.

crystal display (LCD) to show the current product price and other relevant information, such as customer ratings, promotional items, product attributes, stock information and links to additional product data.

Contactless payments
Contactless payments accelerate the checkout process and provide added security for consumers making purchases via credit, debit or smart cards, smartphones and other mobile devices using RFID or near-field communication (NFC). An embedded chip and antenna allows shoppers to wave their cards or devices over a POS reader in close proximity. (Traditional mobile payments use broad area cellular or Wi-Fi networks and do not involve close proximity, making them less secure.) Contactless payments will exceed the $1 trillion mark for the first time in 2018, a year earlier than anticipated, and in-store contactless payments will reach $2 trillion by 2020, representing 15 percent of total POS.[10]

Experiential shopping
Experiential shopping lets shoppers try (virtually) before they buy. These interactive tryouts can simulate the environment a product is meant to be used in, create aspirational experiences, let consumers test different options and put online merchandise in a familiar context. Many use augmented reality (AR) and/or virtual reality (VR), a group of hardware, provider and software additives that enable shoppers to visualize digital surroundings in real time. At Lowe's, for example, the Holoroom Test Drive offers VR so customers can sense the feeling of holding and using a power tool.

Connected homes
Connected homes, facilitated by IoT, can mean everything from voice-controlled lights and house-cleaning robots to AI-enabled security cameras and appliances that can place shopping orders. In the kitchen, the new LG InstaView ThinQ refrigerator offers streamlined food management through LG's webOS platform and Amazon Alexa's voice recognition technology. Grocery shoppers can check the refrigerator contents using their smartphones connected to a camera inside the refrigerator, or order items from home through the refrigerator itself. The ThinQ fridge can also communicate directly with LG's Wi-Fi-enabled AI oven and dishwasher.

Current U.S. household penetration for smart appliances is 14.2 percent, and it's expected to hit 28.6 percent by 2022. Consumers ages 25 to 34 are the most frequent smart appliance purchasers (47 percent), followed by ages 35 to 44 (28 percent) and ages 18 to 24 (17 percent).[11]

NEW ONLINE RETAIL SELLING MODELS AND THE EVOLVING OMNICHANNEL EXPERIENCE

As e-commerce grows, it continues to diversify, giving customers more options and conveniences. Some brick-and-click operations have become fully integrated, providing shoppers with seamless omnichannel experiences. Other e-commerce companies offer specialized features that mimic the in-store experience. And a growing cadre of online subscription services regularly supply consumers with everything from fashionable apparel to dog food.

Staying ahead of the curve: Do's and don'ts

DO keep the customer front of mind.
Many factors influence how your customers shop, and their wants and needs change constantly. Keep up with the different ways in which they prefer to shop and receive information, both digitally and offline. Facebook, for example, initially appealed to younger consumers but now skews older, with people ages 18 to 24 attracted to multiple platforms, including Snapchat and Instagram.

DON'T leave gaps in the shopping experience.
Eliminating gaps between physical and online shopping experiences facilitates the customer journey and maximizes your use of digital tools. In fact, 81 percent of retailers plan to offer unified commerce by the end of 2020, and 91 percent plan to provide order visibility across channels within three years.[13]

DO create a formal digital strategy.
Assess your business goals and determine what needs enhancement. Identify elements that add the most value along with their inherent disadvantages. This is where digital tools should first be applied.

DON'T grab every available data source at once.
Start by focusing on existing familiar data sources such as POS and loyalty. Figure out how and where

Seamless omnichannel
With true brick-and-click integration, customers can access the same information across devices and channels. In Home Depot's stores, shoppers frequently use its mobile app to check shopping lists, read reviews, see product details and discover merchandise's physical location. When signed in to the app, in-store customers can also view saved items, pending orders and other details across desktop web, mobile web and app. About 15 percent of Home Depot's mobile app usage occurs within its physical locations.

Last mile delivery
Retailers are blurring the lines between channels by using digital technology to link multiple ecosystems for last mile delivery. Ecosystems can include stores, distribution centers, Uber and Amazon lockers. Walmart, for one, has been experimenting with various last mile delivery models for online orders placed through individual stores. In September 2018, it announced a deal with Spark Delivery, a crowdsourced in-house delivery company. Walmart also has last mile agreements with Deliv and Postmates. This resource combination should eventually provide last mile delivery to 100 metro areas covering 40 percent of U.S. households, according to Walmart.

Virtual rooms and mirrors
Some retailers are using online virtual fitting rooms (also called virtual trial or try-on rooms) to let shoppers see how products complement their looks or lifestyle. These try-before-you-buy apps are most popular in fashion categories, particularly apparel, furniture, housewares and accessories. The IKEA Place AR app lets users virtually position furniture in various rooms of the home; the furniture is three-dimensional and to scale so consumers can make informed decisions about size and design.

Another growing AR application involves smart (or virtual) mirrors that display a user's image on a screen as if the screen were a mirror. Virtual mirrors are available as mobile phone apps, with some allowing users to modify their hairstyle, clothing, makeup or accessories.

Conversational commerce
This emerging technology builds relationships that generate repeat traffic. By using automated customer service interactions, online shoppers receive responses within hours, augmenting conversion and retention. Stitch Fix entered this game early with an algorithm that continuously learns and adapts to customers' preferences while combining AI with human intelligence. New visitors to the site are asked about sizes, wearing occasions, personal style and other variables before collections are curated for them. After the boxes are sent out, Stitch Fix builds on that information based on what shoppers keep and return.

PRICING AND PROMOTIONS DONE RIGHT

Offering the best prices and promotions at the appropriate times in the right markets can maximize sales conversion and margins. AI and its subset, machine learning, can create dynamic pricing

these sources fit into an overall digital strategy. Then layer on more data, such as demographics and insights from sources like websites, mobile apps, stores and call centers.

DO keep what works even if it's not digital.
The latest bells and whistles can entice millennial consumers. But unless you specialize in the fast and faddish, your customers are probably not all young, trendy and digitally savvy. Offering a mobile app but keeping paper coupons, for example, may be the best way to meet everyone's needs, particularly in a category like food or appliances that attracts very mixed demographics.

DON'T be distracted by shiny objects.
Digital transformation is less about the newest, coolest technology and more about meeting the needs and expectations of shoppers and the organization. Understand how and why a specific technology will do that before you buy into it.

DO tap the expertise of digital transformation partners.
Many retailers lack the necessary skill sets to execute digital transformation projects. Partnering with experienced providers can help you better understand the steps involved and how to best execute them on an ongoing basis.

models that let retailers regularly (or periodically) adjust prices based on various criteria. Those criteria can include supply/demand, seasonality, competitors' pricing, peak shopping periods, consumer perception/behavior, weather and more.

Dynamic pricing algorithms
Amazon uses dynamic pricing algorithms to constantly scan competitors' prices. At the heart of the algorithms is a machine learning model that estimates the impact on revenue for each possible price configuration. It then adjusts prices according to their pricing dynamics. Amazon's reputation for competitive pricing, in fact, is one reason for its success.

Brick-and-mortar retailers that are trying to compete in this space also have options for dynamic pricing. However, the use of pricing algorithms needs to be connected to an efficient and effective delivery mechanism. A smart electronic shelf label is the basic digital shelf edge that enables a traditional retailer to capitalize on the benefits of dynamic pricing.

Personalized pricing
In some stores, Kroger is testing personalized pricing through interactive shelves. These shelves use sensors and analytics to detect individual shoppers using their mobile app. Kroger then offers tailored pricing on certain products and highlights items on the shopper's mobile shopping list. For example, if a customer with a gluten allergy is looking at nutrition bars, he or she will be shown gluten-free options and offers.

Beacons
Beacons can inform customers about special offers. Often associated with IoT, beacons are small Bluetooth devices planted throughout a store that send alerts to smartphones based on shopper proximity. Customers can receive information on loyalty discounts, special events and other topics. Macy's beacons, which work through its app, create a true omnichannel experience: Beacons recognize which department the customer is physically visiting and what he or she has viewed online. If a shopper is browsing the cosmetics section, for example, the app will remind her of the makeup brands she liked online.

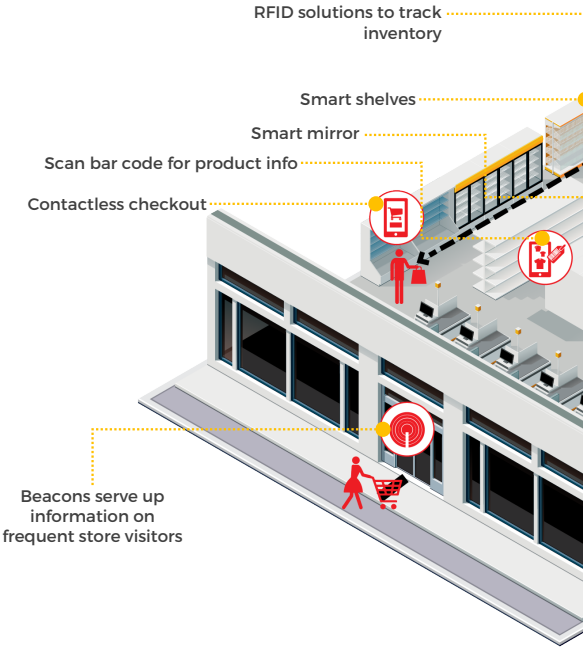
360-DEGREE CUSTOMER SERVICE

Good customer service involves effective communication and the ability to provide information quickly. Growing from foundations such as loyalty apps and shopper engagement platforms, digital innovations like chatbots and natural language processing (NLP) increasingly are replacing humans, eliminating customer wait time and easing labor costs.

THE STORE OF THE NEAR FUTURE

EnsembleIQ's Store 2020 concept integrates technology into the traditional store setting in a fluid way. The frictionless commerce experience at Store 2020 begins in the parking lot, with beacons serving up information to an approaching shopper based on frequent store visits. Inside the store, personalized coupons are provided to the shopper through her smart device via digital signage connected through IoT (Internet of things) technologies.

Smart shelves, smart packaging, smart sensors, smart price tags and smart shopping carts continue to enable the shopper's connected journey. As she shops, robots with touchscreens are rolling the aisles to help her browse inventory or find products. Augmented reality (AR) and virtual reality (VR) will be featured in dedicated rooms for more engagement and buying opportunities. RFID will track inventory. And one scan of a bar code will provide contactless checkout for items picked from the smart shelves.



Chatbots

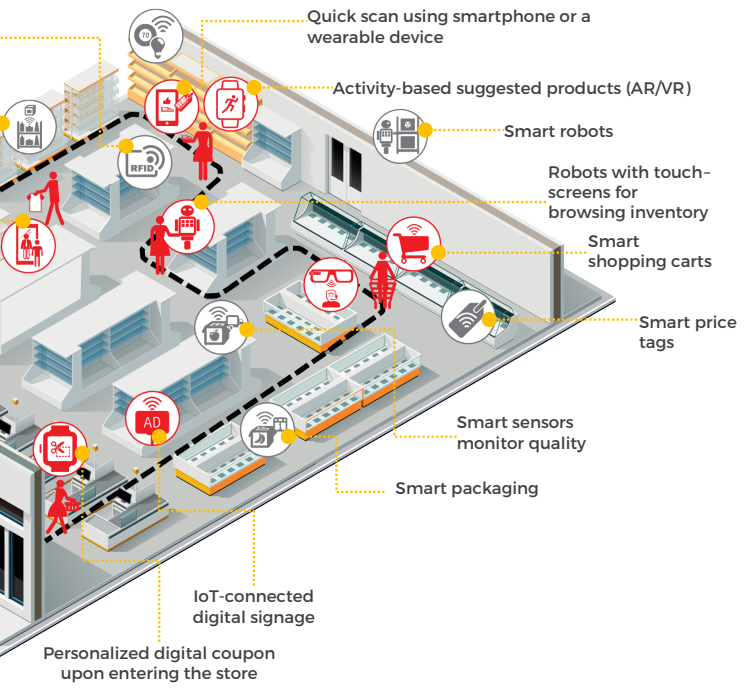
Chatbot software can converse with customers within chat platforms like Facebook Messenger, Slack, and SMS. While their capabilities are still limited, chatbots can be programmed to respond to frequently asked questions and show relevant information.

Both H&M and North Face use online chatbots that help shoppers choose the right merchandise. The chatbots ask about style preferences, what item the customer wants and other criteria, and then recommend specific products. In-store, Lowe's is testing the Lowebot, an in-aisle touchscreen robot that answers shoppers' questions and helps locate products.

Natural language processing

NLP, a subset of artificial intelligence, can be coded to communicate like a person, using speech or text to answer customers' questions. On e-commerce sites, NLP helps users find products without having to choose from different options available through static searches, yielding higher cart checkout conversion rates.

Online Australian fashion retailer Zimmermann uses an NLP-based solution in its product search engine. If a user enters "ankle shoe," for example, search results include "ankle boot" and "ankle heel," which do not contain the term "shoe." But NLP understands that a product with an ankle heel is likely to be women's footwear, even if that word is not part of the product name or description.



INVENTORY CONTROL AND STORE OPTIMIZATION

The digital transformation of retail is also touching technologies that are generally invisible to consumers. Chief among them are applications that monitor stock levels, alleviating costly over- or understocking, and those that help retailers determine appropriate store formats, sizes and locations.

Virtual inventory

Virtual inventory melds channels by showing all available products in particular stores, stockrooms, online, in warehouses and even in transit via truck or sea cargo. If a desired item, size or color is unavailable in one location, employees can quickly locate it and ship it to a customer. Some virtual inventory systems also show suppliers' inventories, letting employees order out-of-stock items directly from a manufacturer for shipment to shoppers.

Item-level RFID tagging

RFID has moved beyond its usage for just tracking warehouse pallets. Item-level RFID tagging is becoming an important component of store-level inventory control, and it is expected to ultimately replace bar codes in applications that require bulk counting. RFID tags hold much more data than a bar code, and information can be changed or updated.

RFID also provides greater and more immediate inventory visibility, facilitating granular control. It can help eliminate out of stocks and duplication by showing exactly where items are, including misplaced ones. In fact, 73 percent of respondents to a retail RFID survey said they had either implemented or were currently implementing or piloting RFID, and retailers who measure inventory accuracy related to RFID saw an average 25 percent improvement due to RFID.[12]

Zara, along with Lululemon and Macy's, has been a pioneer in item-level tagging in retail stores. Zara's 2,200-plus locations currently use item-level RFID tagging to closely monitor product performance and maintain lean inventories, introducing small quantities of new items every few weeks to ensure that Zara's fast fashions do not become fast failures.

On-shelf availability
Closed-circuit television cameras (CCTV) have been evolving for years. Today, digital CCTV combined with a digital shelf edge and a powerful algorithm can cost-effectively determine if product is available on a shelf and then alert staff to address issues in order of priority. Bio c' Bon, a leading French organic retailer, has implemented this solution to reduce out of stocks and increase customer loyalty.

Click and collect efficiency
Providing click and collect options to consumers has shifted labor costs to retailers and outsourced services that previously were absorbed by consumers. In many instances, retailers are struggling to absorb these extra costs while serving the needs of their shoppers. A digital shelf edge allows retailers to digitize their planograms, enabling pickers to optimize their store journeys just as in a warehouse management system. Intermarche, a European food retailer, has experienced 30 percent gains in productivity for selection of click and collect orders using a smart electronic shelf label system.

AI-driven planning for stores
Artificial intelligence is enabling digital solutions that can help retailers make better use of their space. U.K.-based Pets at Home, for instance, uses an AI-driven planning and optimization solution to optimize space in its 440 stores, which offer pet care products along with veterinary and grooming services. In each store, the AI solution conducts a detailed SKU-level performance analysis and recommends optimal space allocations by category, aisle and department.

AI-powered software is also powering more effective retail site selection. This type of software factors in millions of data points covering everything from prospective co-tenants, traffic patterns and other location information to target customer profiles, numbers of prospective shoppers and specific area demographics.

A NEW AGE OF SOLVING AGE-OLD PROBLEMS

In the modern retail world, big companies no longer call the shots. The customer is king, backed by mobile and digital technologies that give shoppers unprecedented power and guide their actions in researching, buying and sharing their opinions about retailers and merchandise. Retailers can continue to engage and delight these shoppers by radically rethinking how they use technology too, pursuing new business models and creating highly personalized shopping environments that coordinate seamlessly across channels.

It's all about connecting with customers in ways that go beyond a simple transaction. Digital transformation is a new journey with an age-old goal: making customers happy and creating ongoing relationships.

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APERION

12999 St. Charles Rock Road | Bridgeton, MO 63044
800-966-4547 | aperionsolutions.com

Are you ready for the digital transformation of retail?
Aperion is helping to create the future of food retail through digital transformation. We focus on shoppers, what they buy, and the environments in which they buy. Our strategists, innovators and technology integrators come together to enable retailers to not only effectively compete, but to continuously drive tangible bottom line results that positively impact loyalty, revenue and profitability.