

BRAVE NEW WORLD

How the 'Internet of Things' will transform retail

by M.V. GREENE

The "Internet of Things," where objects in the physical world are connected to electronic virtual networks, is poised to turn retail on its head. Not since the introduction of online shopping — and before that, credit and debit cards for purchasing — has something in retail had the potential to be so transformative.

"A lot of the things we discovered we can do online, now, with the Internet of Things, we can also do offline," says Michael Chui, a partner at the McKinsey Global Institute, the business and economics unit for consultant McKinsey & Co.

Bricks-and-mortar stores have seen nothing like it, Chui says — IoT will touch the entire retail enterprise.

One example: point of sale and checkout. Someday in the not-too-distant future, Chui says, a customer will be able to walk into the store, grab what she wants and simply leave. It may seem extreme, but IoT portends dramatic change in the customer experience.

"People have said when checkout is working really well, it will feel like stealing," Chui says. "You grab a pair of shoes and you just walk out."

Through a population of sensor technologies placed strategically within stores, retailers will recognize customers when they walk in the door through smart devices or other means, Chui says. Stores will have payment cards on file; customers will be billed when they leave the store with the merchandise, essentially bypassing the checkout.

"That could create a really interesting way to improve the customer experience," says Chui.

LISTENING TO CUSTOMERS

In the retail store, notes Oracle Retail Senior Director of Technology Strategy David Dorf, inexpensive sensors can be placed on shelves to indicate when inventory is low and trigger in-store fulfillment, on intelligent product displays and within kiosks that detect who is around them to deliver customized content, in video cameras to gather analytic data on store

traffic or as part of RFID systems to speed along checkout — such as having the grocery cart total up items.

"As the sensors track people very accurately through stores," Dorf says, "we can learn how people shop and optimize stores for those particular people."

Ronald L. Bowers, senior vice president for business development with retail consultant Frank Mayer & Associates, says consumers, particularly Millennials, are a driving force behind the industry's attention to IoT. Over the past 18 months, retailers have been hearing loudly from consumers about the need for an "omnichannel experience" that connects their physical and virtual worlds.

"The Internet of Things would not be as relevant or important to retail were it not for the fact that the consumer requires this type of an experience," Bowers says.

With the rise of online shopping, retailers often have been placed in the untenable position of having their in-store and online offerings clash. "There was a certain amount of disconnect between what [consumers] were finding online and what they were finding when they walked into the store," he says.

"They are in your store asking for the same price that you were offering on your website. ... You have consumers who have enough loyalty that they come into your store and they want to make a purchase, but you're telling them, 'No,'" he says. "You can't do it that way. Suddenly the retailers realized they had better get their act together here."

CONNECTING EVERYTHING

Gartner reports that the physical objects within IoT — those that contain embed-

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ded technology to communicate and sense or interact with their internal states or the external environment — will grow from 900 million units in 2009 to 26 billion units installed in 2020. IoT product and service suppliers will generate incremental revenue above \$300 billion in 2020.

Computers, tablets and smartphones are excluded from Gartner’s IoT market projections, although the category does include wearable technologies like wristwatches and other items that observers believe can be integrated into consumers’ daily lives. The increasingly low cost of processors in sensors will afford the ability to connect “just about anything,” Gartner reports, “from the very simple to the very complex, to offer remote control, monitoring and sensing.”

As IoT technology deploys, retail stores will become more intelligent locales in connecting physical objects in the stores with digital processes, but largely in a favorable, behind-the-scenes manner, Dorf says. Through analytic data gleaned from IoT sensors, the intelligent store will give store managers greater insight into how shoppers and store associates interact with products and where resources need to be deployed to enhance the shopping experience.

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‘ACTIONABLE INFORMATION’

The key impact for retail will be the additional data available to accommodate in-store customers through enhanced loyalty and promotional programs, says Dorf. “With

sensors and an opt-in loyalty program [retailers] would be able to tailor content to be more relevant to people.”

In a fashion apparel aisle, for instance, a consumer conceivably could pick up an item and the sensor on the garment would interact with the shopper’s smartphone and direct her to a nearby rack for a recommended accessory, including personalized content about the items.

In another example, a shopper in a store dressing room could immediately send an image of the outfit she is trying on to friends on a social media list via an IoT sensor, and receive opinions on the outfit.

“Today shoppers seek to have an engaging and seamless shopping experience, regardless of where they are or what devices they are using,” says Ajith Sankaran, senior vice president for Blueocean Market Intelligence. “IoT could help customers to significantly reduce the time and effort for shopping, and at the same time provide them with more choice and more customization,” he says.

With seamless, real-time gathering of data in the physical store — similar to how brands and retailers gather data via electronic commerce — inventory and supply chain functions like SKU management and optimization promise to be among the biggest beneficiaries of IoT in retail, Sankaran says. In many respects, retailers are moving more quickly in back-office operations with IoT deployment than they are on the sales floor.

“The use of sensors and RFID tags on products enables real-time monitoring as the products move through the supply chain,” he says. “This can integrate backward to the supplier systems, enabling them to send stocks at the optimum time. At the retailer’s warehouse and

stores, sensors can be deployed at product level and at aisle and shelf levels to enable higher efficiencies in restocking, automating order fulfillment and stock management.”

CONTROLLING HOME AND OFFICE

In addition to improving internal processes in retail stores, IoT is spawning new business opportunities for retailers like in-home and office automation. Office products retailer Sta-



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ples has created the Staples Connect platform, a universal hub system powered by IoT technology that allows users to control connected devices via a single app.

Peter Gerstberger, senior merchant of new business development for Staples, says the platform was rolled out in a 30-store trial last November and already has seen measurable consumer acceptance. Staples is introducing the platform through an interactive retail kiosk in stores where consumers can get setup assistance from Staples associates. Gerstberger says he expects the offering to be expanded during the summer of 2014.

“This represents an incremental business opportunity for us,” Gerstberger says. “The Internet of Things is making this possible.”

Created in conjunction with software developer Zonoff, the platform provides control over a number of home and office functions, including lighting and climate control, fire detection and security, through devices like smartphones, tablets or personal computers — wherever the user might be located. Staples Connect works with spe-

cific vendors to bring services together under a single app-based platform.

While Staples Connect can allow a small business owner to get a building ready in the morning when driving to work by signaling when to turn on building systems, Gerstberger says the platform offers additional efficiencies. A store owner can give a lone code to a custodial vendor to do cleaning or give another code to a delivery company to facilitate pick up/drop off when no one is there.

Observers point out that IoT has been bubbling under the technology surface for several years. What is different now is a convergence of needs: the desire of consumers for new store experiences that complement virtual experiences, favorable technology price structures and a willingness on the part of brands and retailers to change and invest.

SAFEGUARDING DATA

Besides figuring out how to pull off the logistics of IoT so the promise of a new retail enterprise is realized, a major hurdle for brands and retailers is to gain the trust of consumers when their personal data is flying back and forth in real-time across networks.

Dorf says the safeguarding of consumer data will be a big consideration in how fast IoT deploys. Already, regulators are responding to the new possibilities through fact finding to determine if new governing rules will be required.

Retailers must be wary of a “creepiness factor” surrounding the privacy of consumer data, Dorf says, suggesting that merchants approach IoT deployment with a “butler” rather than a “stalker” configuration.

“The stalker wants something from you and typically is trying to get as much information as possible and wanting to directly impact you,” he says. Conversely, “The butler is kind of always in the background, always helping you, pointing things out that might be of interest, trying to make your life easier.”

“If retailers can focus on this butler mentality, the Internet of Things has a lot of potential to help make the customer experience more rich and engaging and loyalty will ensue.”

STORES

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