IoT

Innovating Retail Channel Operations

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A RETAIL PRO WHITEPAPER

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IoT impacting retail today

The Internet of Things (IoT) is drastically changing long-standing retail industry practices and processes. Having enjoyed a rich history of direct contact with suppliers and customers, retailers will only continue to grow and strengthen those relationships with the implementation of new connected technology. Consumers, too, are embracing the innovative ways in which IoT can enrich their customer experiences, and suppliers understand they are at the heart of interactions between retailers and customers.

Retailers and suppliers alike recognize the role IoT can play in driving customer loyalty and increasing sales activity.

A bit of background

The debut of IoT technology is not the dawn of supplier-retailer connectivity. Electronic Data Interchange systems, which provide standards for exchanging information electronically, date back more than 30 years. Item numbers, purchase orders, style lots and even sales data could be shared bidirectionally between merchants and manufacturers or distributors.

Some companies outsourced the operation of systems and processes for creating, transmitting and receiving EDI documents; others kept it in-house. EDI was the most effective technology for handling transactions among business partners — until the Internet of Things came along.

By moving from paper-based to electronic exchanges of business documents, companies enjoyed benefits of reduced cost and errors, increased processing speed, and improved relationships with business partners. Today, partners are once again gaining those benefits – in magnified proportions, thanks to processes powered by IoT technology like beacons, RFID, geo-location, etc.

Whether implemented in B2B, B2C, C2B, or C2C markets, the Internet of Things can positively influence the full lifecycle of any product sale.

B2B implications: RFID

Seamless communication with vendors and product manufacturers is crucial for a productive business relationship. Detailed knowledge about products in the pipeline – including identifying contents, determining their location, and discerning delivery times – is imperative. IoT technologies such as RFID can more quickly and efficiently track products from the raw materials

stage to delivery as a finished product at a retail outlet, compares to traditional tracking systems.

At the factory level, RFID tagging helps manufacturers order the right amount of raw materials. The technology alerts the OEM and their suppliers when inventory levels are low, and can automatically replenish the item. Information is scanned into computers, circumventing humans – and their error-prone data-entry ways. The flow of information and products is simultaneous.

But suppliers don't just use RFID for replenishment; it is also used to optimize the factory process. RFID tags give partners visibility into a specific product's exact location. For example, say an RFID-tagged order of red linen is required by a domestics mill. The order is located using the RFID tag, and, according to the embedded information, it is moved from the warehouse to the production facility, where it will be transformed into holiday tablecloths. The linen can be tracked on its way to that facility, and then, after manufacture, the final product will be retagged for delivery to a specific retailer.

Where is my inventory?

This is where the second part of the B2B journey begins. The million-dollar question, quite literally, for retailers is, "Where's my inventory?" The ability to track product movement begins at the point of manufacturing, and RFID tags help trace inventory, its treatment, and its condition throughout the supply chain.

For instance, information from an RFID-chipped pallet that's integrated to an IoT gateway device in the shipment vehicle can be uploaded and stored in the cloud. All stakeholders can then use software to:

- Identify the pallet
- Share its position using GPS coordinates, and
- Generate other data – weather, traffic conditions, driving pattern, average speed, and vehicle maintenance, etc.

Monitoring the condition of transport is particularly important for those selling perishable items and requires many more IoT sensors than other markets. For example, brands such as Cadbury and Hershey's must ensure their confections are transported at a precise and consistent temperature. Using IoT technology, variables such as temperature, humidity, vibrations, and altitude can be easily monitored and maintained appropriately.

Some luxury brands are embedding RFID tags in labels or even fabric as identification. Once the encrypted data is scanned, a buyer can readily and reliably distinguish original goods from counterfeits.

Products can be easily identified and verified, and tampering can be indicated directly. The demand for such services is booming: A recent report from Allied Market Research found that the global anti-counterfeit clothing and accessories packaging market accounted for sales of $12 billion in 2014 and is expected to reach $20.5 billion by 2020.

B2C applications

Once the products arrive at the retailer, IoT technology can work similar wonders inside the store. After the RFID tags are read and the stock is checked in, in-store inventory issues can be addressed with a combination of IoT connectivity, including sensors, beacons, and in-store GPS.

Sensors

Both hardware and software can make the store shelf "smarter" and tie it to the storage room. With a solution comprising store shelf sensors, smart displays, digital price tags and high resolution cameras, retailers can know what is on store shelves and in stock rooms, and can link those two data sets. When a customer buys the last of a particular item on a shelf, a notification can be sent to the stockroom, which, in turn can either restock or notify the supplier that the next shipment is needed. This is particularly helpful for retailers with a checkered pattern of stock outs, perhaps due to fast-moving trends or seasonal sales swings. Greater visibility with IoT provides can significantly improve inventory management, leading to greater inventory turns and more sales.

Beacons

Beacon technology is a B2C application that can help drive customers to those "smart" shelves, bringing e-commerce tactics to the physical store. Online stores have the advantage of incredible amounts of customer data to mine, analyze, and apply for more tailored and streamlined shopping experiences. Brick and mortars, through the use of beacons and other devices, are starting to leverage data for that purpose as well.

For example, beacons can offer more targeted content on smart displays within the stores (even at the shelf) or onto customers' mobile devices. Coupons and exclusive events can be "pushed" to the consumers, and via such targeted content, retailers are increasing retail sales. Inside a retailer's smartphone app, shoppers can define personal shopping preferences like food preferences and allergies. Next time they enter a store, their phones will connect via Bluetooth to relevant smart displays based on the specified preferences.


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Combined with beacons, cameras that upload digital content to a data center or to the cloud for later viewing offer a potent weapon to prevent internal theft and shoplifting. But that one-two combo of beacons and cameras can also help retailers improve store flow, accommodating their customers and increasing turnover for slow-moving goods that otherwise may cause lost revenue.

In-store GPS

This type of functionality typically would reside in a large retailer's smartphone app, or in a mall app. Using a combination of Wi-Fi and GPS, the retailer knows when shoppers are near the store or a particular display on the sales floor, and can offer deals and promotions based on that data. Offering location-based real-time product suggestions through a shopper's personal mobile device helps brick and mortar retailers compete effectively against online merchants. The Macy's flagship store in New York City uses in-store GPS to this end, as does American Eagle Outfitter.

In-store GPS can target consumers and glean critical insights about how they choose to shop, providing answers to a tricky puzzle for retailers.

Other technologies can also be used to establish direct communication with customers, such as QR codes and gamification. For example, a customer walks into a high-end boutique and sees a QR code that's offering a 10% discount for participating in a game about fashion. She answers the questions and then receives a discount on her next purchase, or an invite to an exclusive event. Not only is it a way to incentivize sales, but it also fosters customer loyalty.

Consumer-initiated IoT

Consumers can communicate to businesses (C2B) using IoT solutions too. With barcode scanner applications on their smartphones, it's easy for customers to compare products and prices on the spot. Coupons, discounts, product information and reviews are literally at their fingertips.

Consumers are also reaching out to fellow consumers. C2C communication is increasingly popular, and for many millennials, second nature. Posting photos of merchandise before buying in order to gauge opinion is an ordinary event. The influence social media has on retailing is significant, and it's growing. The latest research from Internet Retailer's 2015 Social Media 500 study reported that social media influenced total purchases of $3.30 billion in 2014, 26% greater than the previous year.

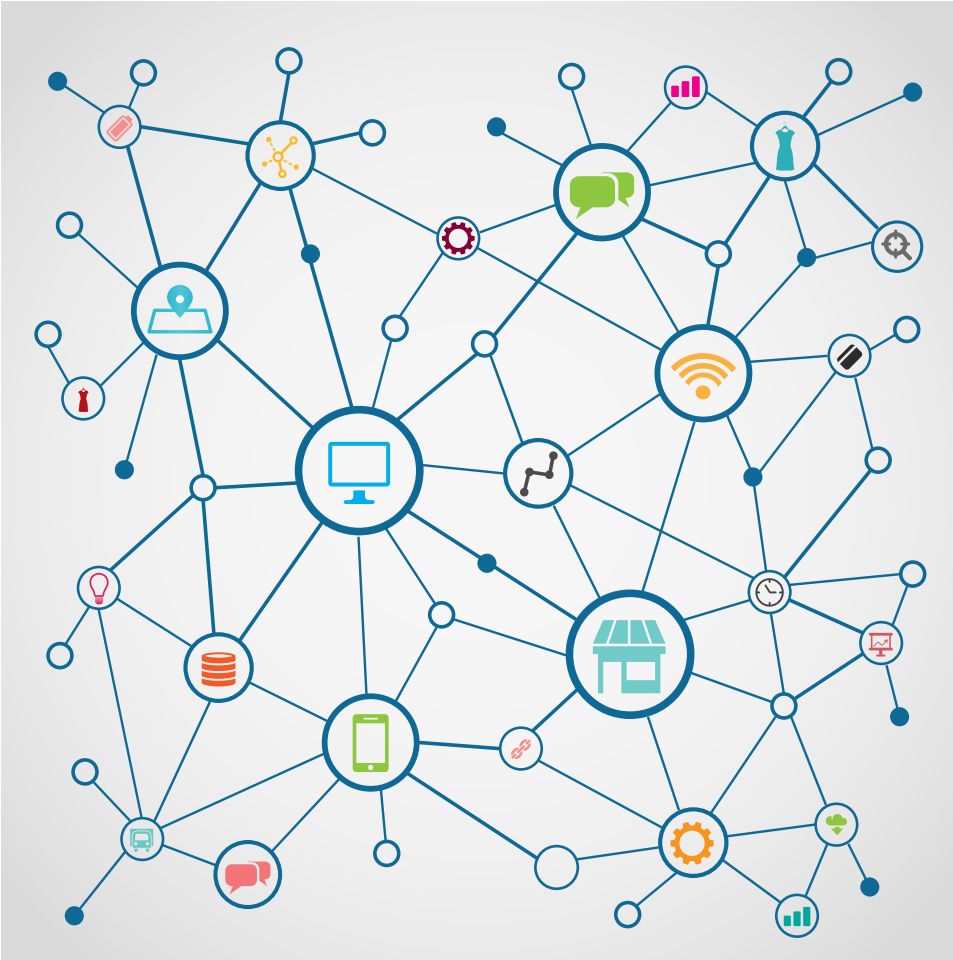
Retailers that can capitalize on the popularity of social sharing will reap the benefits of yet another revenue channel. One way

they're doing it is by embedding item-level share buttons directly on a digital receipt. When a shopper receives such a receipt, he can share each item on any social media site the retailer integrates. That's like putting a megaphone in the hands of a customer – and nothing is more welcome than free, positive publicity.

Back to the beginning

Once the sale is completed, the entire cycle begins again. The retailer's in-store systems provide tremendous volumes of critical data to be digested and analyzed. With those data-driven insights, new orders are placed, product manufacturers communicate with suppliers, and – despite continually changing business processes, increasing data complexity and evolving requirements – the life cycle of a retail sale continues, streamlined and more efficient thanks to IoT connectivity.

The true value of IoT for retail lies in connecting infrastructure, suppliers, third parties and customers. The use of IoT technology by retailers will soon become necessary to successfully compete in both the virtual and physical worlds. Retail IoT solutions help achieve real-time insights, enabling unprecedented value in terms of consumer and product insight, maintenance, and operations. It enables an environment where retailers can monitor, analyze, and streamline processes to create experiences that delight customers and increase efficiency.



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