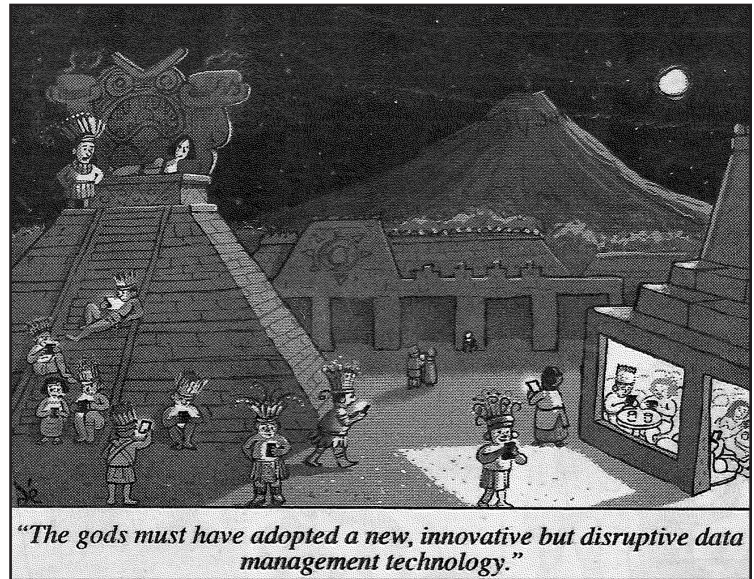




Technology | Retail

TECH IN RETAIL: EXPERIMENTATION ON THE WAY TO A NEW PARADIGM (PART I)

On December 31, 2017, an article ran on the *Business Insider* website entitled, "A tsunami of store closures is about to hit the U.S. – and it's expected to eclipse the retail carnage of 2017." The story detailed that 2017 was a record year for both store closures and retail bankruptcies and that numerous retailers had already announced plans to close more than 3,600 stores in 2018. For those paying attention to the retail industry, the article wasn't particularly surprising. We would suggest that the store closures and bankruptcies are the playing out of what, in 2013, we called Retail's Great Restructuring. In any Great Restructuring, an industry must let go of old thinking and adopt widespread experimentation. The industry must change how it relates to its customers and then restructure operations, products and services to align with new economic, digital and social realities. While many experiments fail, the ones that do work begin to form new industry paradigms. Omnichannel retail and the seamless integration of technology into physical retail are proving to be two of the new retail industry paradigms. The best seamless integration of technology helps align retailers with the digitally trained consumers' desire for novelty, convenience, speed and personalization, while also allowing the companies to make more-informed decisions. An increasing number of retailers are using technology, and often the data that is gathered by it, to make in-store, marketing, product, inventory and pricing decisions (IF 3411, 6/28/13; inF 1111, 11/4/16; IF 3815, 7/20/17).



TAKEAWAYS

- The retail industry is still in the midst of its Great Restructuring, but elements of the next paradigm are starting to emerge.
- The seamless integration of technology into physical retail locations helps align retailers with the digitally trained consumer and will increasingly be an important component of retail.
- The gathering and utilization of omnichannel data are becoming essential practices.
- If retailers use data well, they might be able to regain some pricing power.

IMPLICATIONS

- Providers of in-store technology to the retail industry benefit.
- Providers of data services and analytics to the retail industry benefit.
- Providers of price-optimization software benefit.
- Retailers who utilize in-store technology to align with the digitally trained consumer will outperform their competitors.

Omnichannel Data: From Online to In-Store and Back

Data derived from online behavior and purchases are increasingly being put to use in physical retail. Farfetch, which connects online consumers with a network of physical boutiques and brands, is the world's top luxury e-commerce destination, measured by traffic. In 2017, the company unveiled its Store of the Future and its FarfetchOS. The concept store isn't actually one physical location, but rather a retail platform with a suite of different technology products that Farfetch intends for its partners to mix and match in order to create their own unique physical-retail experience. The company, whose gross sales surpassed \$800 million in 2016, up 60 percent from 2015, unveiled numerous components for its new "operating system," including:

- A universal login that recognizes a customer as she checks into the store.
- A radio-frequency identification (RFID)-enabled clothing rack that detects which products she is browsing and auto populates her wish list.
- A digital mirror that allows her to view her wish list and summon items in different sizes and colors.
- A mobile payment capability.
- Access to an underlying data layer that connects these services with each other on the Farfetch platform.

About one-quarter of the Farfetch marketing team comprises data scientists, but this is the first time the company is offering technology and data to its retail partners in order to enhance their physical retail processes. (*Glossy*, 4/12/17 and 6/26/17)

While Farfetch isn't currently opening its own physical locations in order to utilize its data, other online retailers are doing just that. ThredUp, an online second-hand clothing retailer, announced last June that it will be opening at least five physical locations. Every decision as it relates to the physical store, including the location of the store, is backed by the company's data. ThredUp leverages what it knows of its shoppers' online habits and locations so it can pinpoint exactly what is trending by city, and then makes store inventory decisions. ThredUp also plans to integrate omnichannel features, such as notifying a customer when clothing from her favorite brand or style arrives in a nearby store; prestocking dressing rooms with items a customer chooses online; and providing a service that suggests items available online to complement the look a customer purchased in the physical store. (*Fashionista*, 6/27/17; *TechCrunch*, 6/27/17)

It's not only online-first companies that are beginning to recognize the importance of omnichannel

data. Walmart is attempting to create a similar virtuous cycle, attempting to use machine learning to draw insights from customer data to make better recommendations and to anticipate what shoppers might want. "This is what we call the digital relationship. We want to make sure there is a seamless experience between what customers do online and what they do in our stores," said Laurent Desegur, the VP of customer experience engineering at Walmart Labs. (*Glossy*, 6/28/17; *Venture Beat*, 7/11/17)



Fitting-Room Data

Fabletics, a clothing brand, is owned by TechStyle, which also owns clothing and apparel brands JustFab, ShoeDazzle and FabKids. Seventy percent of the team across the four brands is shared resources, and so, business-analytics and data teams are able to process and utilize more information. Since September 2015, Fabletics has opened 24 physical retail stores, and the company's in-house data team now gathers fitting-room data, which is scanned and added to a virtual cart so that the company can track sales conversion down to single stock-keeping units (SKUs) and react accordingly. Online, Fabletics releases monthly collections, and it claims that 70 percent of its overall business takes place within the first five days of the month, when members are presented with a curated "boutique" of new items picked by the brand based on data collected from earlier customer transactions. The company also utilizes in-store data, which flows from the stores to the online member profiles, to help shape those selections. (*Glossy*, 6/28/17)

Like Fabletics, other brands are gathering and then utilizing fitting-room data in the decision-making

process. In 2017, Reformation, a direct-to-consumer brand, opened its fourth store with a new concept that includes a “magic wardrobe” feature in the fitting room. Customers tell associates, either in person or via a touch screen, what they want to try on, and then go into the dressing room, where all the clothes are waiting. Every item that goes into the fitting room is logged, and the company collects data on everything from how long customers spend trying on particular items to which pieces convert best from dressing rooms to cash registers and which pieces shoppers browsed but did not purchase. Reformation then merges customer online and in-store activities to improve recommendations. The company, which plans to open between five and eight new stores this year, is on a path to do \$140 million in sales in 2018, up from \$25 million in 2015. (*Forbes*, 10/17/17)

Rebecca Minkoff and Ralph Lauren are among the numerous traditional brands that are using a dressing-room mirror created by Oak Labs, which can read RFID tags on clothes and then display those items on a touchscreen behind the glass. A connected recommendation engine can also suggest complementary pieces, such as shoes or a belt. Early results suggest that people buy more while spending less time in the dressing room. Rebecca Minkoff’s CEO said, “Not only does that mean we’re selling a lot more clothing than we thought we would, but we’re getting tremendous data as a result.” In stores using the new connected mirrors, Rebecca Minkoff’s clothing sales tripled the company’s expectations, and Rebecca Minkoff claims the data also helped them recognize new opportunities and areas for change. In one instance, the company says that it learned that a specific leather jacket it sold was tried on seventy times in one week but never purchased. Half of the shoppers asked for different sizing using the touchscreen, which the company inferred meant there was a fit issue with the jacket. (*Bloomberg*, 2/6/17; *Glossy*, 6/30/17)

Tracking: From Online to In-Store and Back

Beyond gathering and utilizing omnichannel data, some physical retailers are gathering and tracking consumers’ movements and facial expressions to generate intelligence. In France, technology installed by one bookseller can

detect where shoppers go in the store and their facial expressions, and then alert staff that the customer may require assistance. The chain used the software to detect customers’ emotions, such as surprise, dissatisfaction, confusion and hesitation. The bookseller claims that after using the software its sales rose by 10 percent. Elsewhere in Europe:

- Stores in Italy have started experimenting with mannequins fitted with intelligence cameras that can detect customers’ facial reactions to outfits.
 - A shop in Estonia used emotion-detection technology from Realeyes and found shoppers who entered smiling spent 33 percent more cash than those who did not.
- (*Telegraph*, 7/1/17)

In the U.S., some retailers are experimenting with geofencing technology, which can provide sales associates with a shopper’s preferences, gleaned from their online purchases and search history. Geofencing uses GPS technology to draw virtual perimeters around store locations, creating a grid in which real-time user data flows in and out. Companies can use this data to target users who are presently within specified areas and also to connect the dots between store visits and online sales, by observing when a customer browses items in a physical store and then later purchases the item through an app or browser. Brands including American Eagle, Sephora and Kiehl’s are experimenting with the technology to target consumers with special deals or advertisements

within designated virtual boundaries. In one Dunkin’ Donuts experiment with a geofencing mobile coupon offer, 36 percent of users took a secondary action, and 3.6 percent redeemed the offer. (*Criteo*, 6/8/17; *Medium*, 6/21/17)

Last spring, Google started offering a different kind of tracking tool to bridge online and offline shopping data. The Google software tracks how much money people spend in merchants’ bricks-and-mortar stores after clicking on their digital ads. The analysis is done by matching the combined ad clicks of people

who are logged into Google services with their collective purchases on credit and debit cards. Google says it has



access to roughly 70 percent of U.S. credit and debit card transactions through partnerships with companies that track the data. (*Associated Press*, 5/23/17)

Data and the Battle for Pricing Power

As we have written, the digitally trained consumer is a smart and resourceful consumer, able to gather information on products and pricing in just a few clicks. For many products and services, that has led to a lack of pricing power. However, as illustrated in this *inFocus*, more retailers are now beginning to gather and utilize omnichannel data to enhance their pricing leverage. Last spring, both the acting chairman and the commissioner of the Federal Trade Commission (FTC) gave speeches on algorithmic pricing, suggesting that they recognize that the usage of this technology is spreading. Some online-only retailers selling via Amazon are already utilizing this kind of technology. A study at Northeastern University looked at pricing patterns for the 1,641 best-selling products on Amazon. The researchers estimated that between two percent and 10 percent of third-party sellers on Amazon were using algorithmic pricing and found that the sellers using that pricing were on average 10 times more price volatile than other sellers. The price of about one-third of the popular products changed at least once a day, and about fifty products changed price more than eight times a day. (*On Competition Policy*, 6/22/17; *Fast Company*, 6/14/16)

Meanwhile, physical stores are experimenting with in-store dynamic pricing. Supermarkets are among the first to attempt to move away from fixed pricing and toward dynamic pricing, with the price of items fluctuating according to demand. The changes would be reflected by an ever-changing electronic price pad as opposed to paper price tags. Kroger has swapped out paper price tags with digital screens at 17 stores, with plans to expand to 130 by the end of this year. (*Washington Post*, 1/16/18)

Boomerang Commerce, a software provider, built a system that tracks prices and informs pricing decisions for clients including Office Depot, GNC and U.S. Auto Parts. Staples uses the Boomerang software to change prices on 30,000 products a day on its website, with the CTO of the company saying, "We want to make sure the software makes the decisions, not the human being. It's all automatic. Otherwise you're losing." (*Atlantic*, 5/17) Consider other pricing software and potential effects:

- In their paper "Detecting Price and Search Discrimination on the Internet," four researchers in Catalonia found that some websites showed different goods to different people based on location and browsing history, even if the search term was the same. The average price for goods shown was also different.
- AI software from a2i Systems is focused on modeling consumer behavior. The software learns when raising prices drives away customers and when it doesn't.
- IBM claims that its price-optimization business uses capabilities from Watson to advise retailers on pricing.
- Blue Yonder GmbH is a price-optimization company utilizing neural networks that serves clients in the grocery, electronics and fashion industries.
- Kantify offers pricing software that can supposedly raise prices whenever a competitor's website has run out of a certain product.

(*Wall Street Journal*, 5/9/17)

Physical retail isn't dying, it is going through a Great Restructuring, and experimentation and failure are a part of the process. While there are still experiments within the tech-in-retail category, we would suggest that the seamless integration of technology into physical retail locations and/or seamlessly integrating online technology with a retailer's physical presence will be one component of the next retail paradigm. Companies that use technology to enhance the retail experience, to collect and utilize omnichannel data in order to align with the needs of the digitally trained consumer and to improve operations will have a big leg up on the competition. The integration of robotics and automation technology into retail will be Part II of this two-part *inFocus* on Tech in Retail.