



# Journal of Retail Analytics

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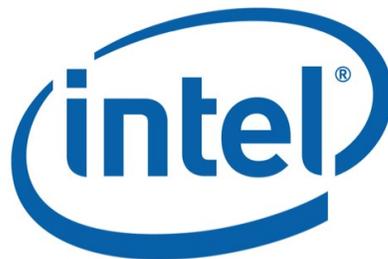
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## Mark your calendar for the Executive Development Program



Plan to attend the **Retail Analytics Council Executive Development Program on September 8, 2017**, in Evanston, Illinois.

The third annual RAC Executive Development Program will highlight cutting-edge research from an international panel of leading retail executives and researchers, with a focus on developing retailing intelligence for today's dynamic retailing environment.

The Executive Development Program format involves presentations of research case studies and discussions around emerging areas of interest, with an emphasis placed on attendee interaction. The following is the current research agenda:

**GameStop Bonding Research:** A study of the relationship between online behavior and in-store purchases.

**Macy's RFID Research:** A study of the benefits achieved from RFID technology.

**Japan Mall Push Marketing Research:** A study of the impact of push marketing in mall environments.

**Robotics in Retail:** A discussion about the future of robots in retail.

**How Retail Supply Chain Management Must Adapt:** A survey of how omni-channel programs are impacting the retail supply chain.

Plus others to be announced soon.

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## INDUSTRY SNAPSHOT:

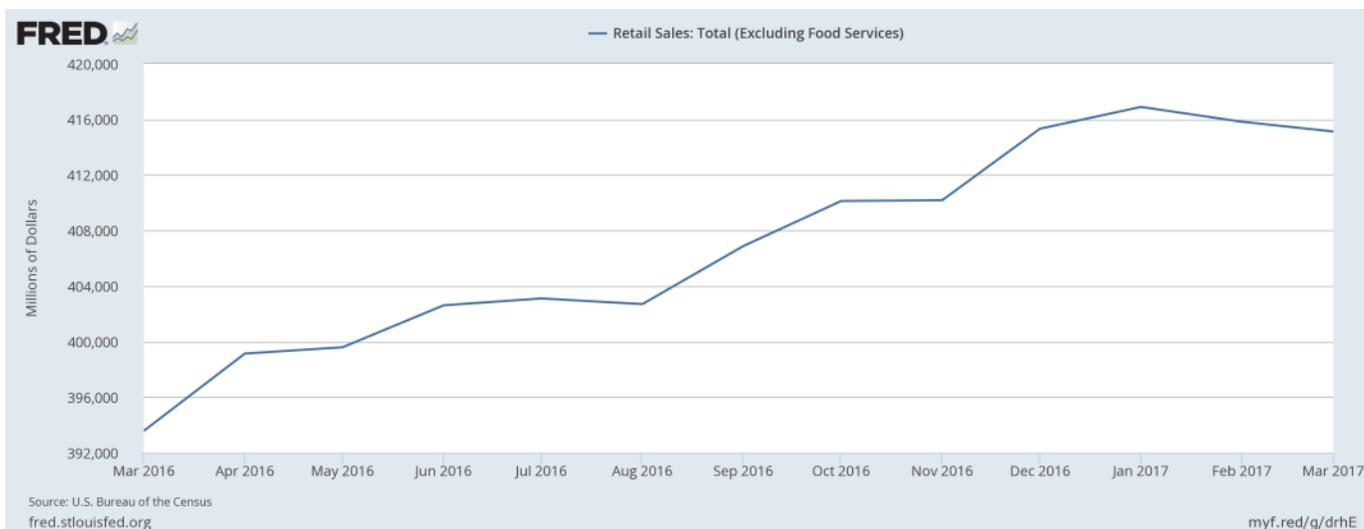
# RETAIL SECTOR PERFORMANCE CHARTS

The following table and charts provide a snapshot of retail sales performance during the first quarter of 2017.

Retail Spending (%)	Mar.	Feb.	Jan.	Mar. Y/Y	2016	2015	2014
<b>Total Retail Sales &amp; Food Services</b>	-0.2	-0.3	0.5	5.2	3.3	2.3	4.2
Excluding Autos	0.0	0.0	1.1	5.0	3.1	1.2	3.7
Non-Auto Less Gasoline & Building Supplies	0.1	0.	0.4	3.5	4.2	4.2	4.6
<b>Retail Sales</b>	0.8	0.0	0.8	4.3	2.9	1.6	4.0

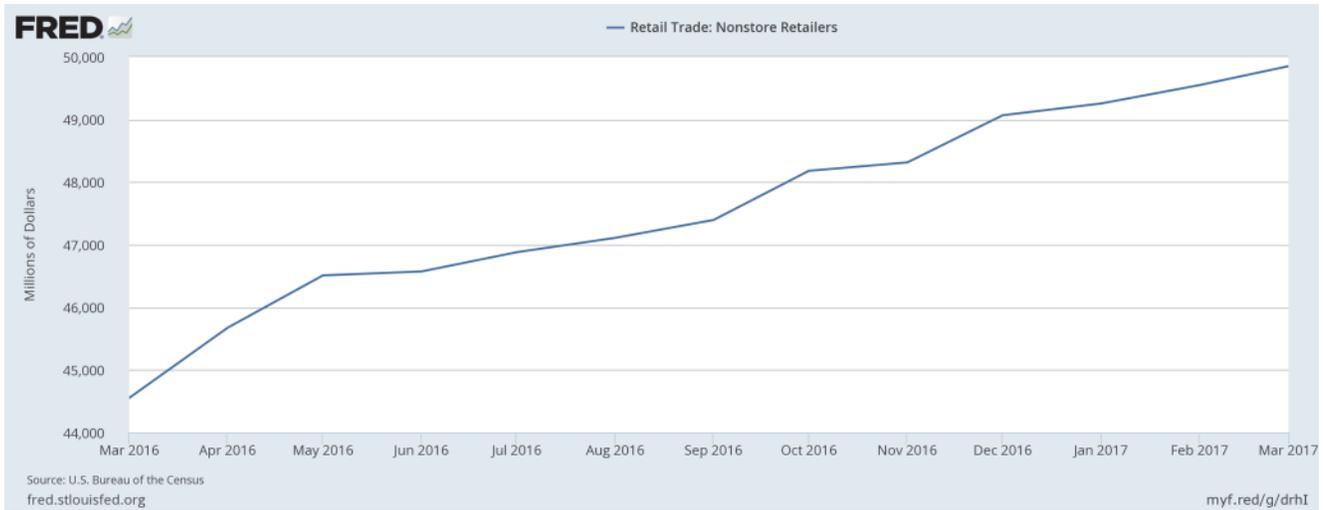
Source: Haver Analytics

Chart 1. Retail Sales: Total (Excluding Food Service).



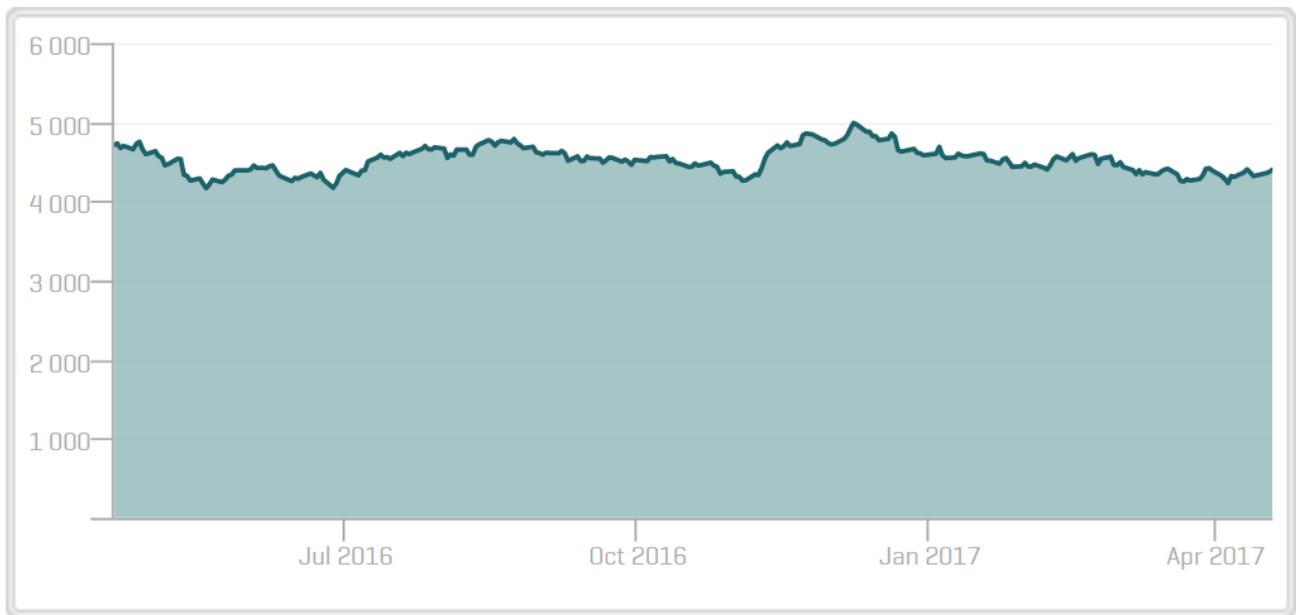
Source: Federal Reserve Bank of St. Louis

Chart 2. Retail Trade: Nonstore Retailers.



Source: Federal Reserve Bank of St. Louis

Chart 3. S&P Retail Select Industry Index.



Source: S&P Global Inc.

# Challenges in Measuring Social Media Return on Investment

By Lt. Col. Mishaw Cuyler, Deputy Director and Assistant Professor, Baylor University; Matthew J. Schneider, Assistant Professor, LeBow College of Business, Drexel University; and Francis Dudley, CEO, Brand New Media LLC and Lecturer, Northwestern University

**S**ocial media spending is expected to double over the next five years to 21 percent of a company's overall marketing budget. The primary areas of social media spending are: content creation, analytics, campaign optimization, social listening, and customer care.<sup>1</sup> Key benefits of social media spending include more relevant messaging to customers and access to prospects with similar demographic and media consumption profiles.

As investment in social media continues to rise, measuring the Return on Investment (ROI) of social media can be a significant challenge as it becomes a more important channel for most companies. As of 2016, the CMO Survey reports that 88 percent of companies are unable to prove the quantitative impact of their social media investment. Furthermore, 48 percent of companies are unable to demonstrate any qualitative impact of their social media investment. The Altimeter Group (2012) surveyed 71 companies and found that the top five reasons for companies not tying social media investment to revenue were: an inability to connect social media to business outcomes (56 percent); a lack of analytics expertise (39 percent); poor tools (38 percent); inconsistent analytical approaches (35 percent); and unreliable data (30 percent).<sup>2</sup>

## Common Data Issues in a Social Media ROI Model

Measuring the ROI on social media spending is a collaborative effort between a company and its social media provider. A company's ability to measure ROI depends on the frequency, aggregation, availability, and consistency of the data that is shared (and owned) by the social media provider. Any reliable social media ROI model needs to address the following crucial issues:

*Is the data all on the same frequency?*

Data which differs on frequency (e.g., daily, weekly, monthly, or quarterly) can be problematic because it requires the social media ROI model to be analyzed at the lowest frequency of any data in the model. For example, a social media ROI model may include the upper funnel metrics of "likes" and "shares." However, if the number of "likes" on an ad is reported weekly and the number of "shares" on an ad is reported *quarterly*, then the model is reduced to a quarterly model. Consequently, optimizations in social media may only be done quarterly.

*Is the data on a customer level or an aggregate level?*

Customer-level data looks like the following:

Customer	Responded to Ad?	Gender	Age	Number of Products Purchased
John	Yes (1)	Male (1)	44	4
Stephen	No (0)	Male (1)	40	1

<sup>1</sup> CMO survey. (2016). The Corporate Marketing Officer Survey. Retrieved October 23 August 15, 2016, from <https://cmosurvey.org/results>.

<sup>2</sup> Altimeter. (2012, July 24). The Social Media ROI Cookbook: Six Ingredients Top Brands Use to Measure the Revenue Impact of Social Media. Retrieved October 23, 2016, from: <https://touchstonecrm.co.uk/wp-content/uploads/2013/09/socialroi-120723190657-phpapp02.pdf>.

Aggregate-level data looks like the following:

Customer Segment	Number Responded to Ad
Males	5,602

Social media ROI models based on customer-level data can produce customer-level insights and avail better optimization opportunities. Based on the customer-level data above, a company may decide to target male customers over age 40 who purchased a greater number of products, or the company could optimize over any interaction of customer features it finds significant. Alternatively, aggregate-level data provides no customer-level insights and restricts analysis to the lowest common denominator of a customer segment. Unfortunately, aggregate-level data is what is most widely available through social media providers today.

*Is any of the data missing or in an inconsistent format over time?*

Missing data can be the result of data collection errors, nonresponse, or suppression due to privacy concerns. Multiple techniques have been introduced in the statistical community for decades to deal with missing data.<sup>3</sup> At the extreme, missing data greatly limits the sample size of a social media ROI model and deletes entire time periods (the rows of the data set). Similarly, data which changes format over time can be especially problematic because all social media ROI models have a predefined structure (the columns of the data set). For example, a social media provider may change the customer segmentation category (e.g., males to all genders) if there are too few males who responded to an ad. Or management may want to incorporate a new variable into the social media ROI model which had no previous data. Optimization of social media spending requires consistent modeling over time so that effects due to changes in social media spending can be accurately monitored.

**“There may be situations where the social media provider will only provide data at an aggregated level to a company in order to protect its consumers’ privacy.”**

### Data Sharing Guidelines

Most of the issues present in measuring social media ROI are largely a result of the data-sharing arrangement between a company and its social media provider. Expectations about the type (i.e., frequency, aggregation, and format) of data required need to be thoroughly communicated prior to the development of a social media ROI model. There may be situations where the social media provider will only provide data at an aggregated level to a company in order to protect its consumers’ privacy. Although this aggregated data can still provide ROI measurements at a segmentation level (consider sending only those customers to the social media provider in a pre-defined segment of interest), it is often not enough to drive critical insights at the customer level. In this case, it may be preferable for a company to seek other social media providers for customer-level analysis, or ask the social media provider to run a pre-specified customer-level model on its behalf.

Companies that participate in data-sharing arrangements also assume a certain amount of risk. Competitive risks could emerge from the sharing of modeling insights, customer-level data, or analytical approaches to competitors by the social media provider. Reputational risks could include decreases in customer trust or brand value due to knowledge of customer-level data-sharing at a social media provider. Litigation risks could appear as a result of a data breach at the social media provider or the diffusion of a customer’s sensitive information through advertising. To diminish risks, companies can consider sharing “synthetic data,” which is customer-level data that has been changed to protect the privacy of individual customers.<sup>4</sup> For example, the company can send the social media provider a list of its customers with fake ages, genders, and number of products purchased that are probabilistically equivalent to the original customer-level data and, therefore, provide access to roughly the same prospects with similar demographic and media consumption profiles.

<sup>3</sup> Rubin, D. B. (1976). “Inference and missing data.” *Biometrika*, 581-592.

<sup>4</sup> Schneider, M. & Abowd, J. (2015). “A new method for protecting interrelated time series with Bayesian prior distributions and synthetic data.” *Journal of the Royal Statistical Society*.” 178 (4), 963-975.

## Marketing Funnel and the Social Media ROI Model

A social media ROI model must be comprehensive and measure throughout the entire marketing funnel. The components of the marketing funnel are awareness, consideration, intent, and conversion. Awareness and consideration are regarded as upper-funnel components while intent and conversion are considered lower-funnel components. Upper-funnel components are generally more difficult to associate with dollar value. For example, how do we accurately compute the value for a “share” or a “like” in the social media arena? Lower-funnel components such as conversion are easier to quantify as they are often tangible and can be tracked through the sale of a product or service. Measurement for all stages of the marketing funnel should simultaneously consider all aforementioned data issues so that the components can be compared.

## Managerial Guidelines for Social Media ROI Modeling

To effectively overcome the hurdles associated with measuring social media ROI, marketers must focus on a few components. First, identifying what data is appropriate and where the data resides within the organization is fundamental. The identification and standardization of the data is a critical component to beginning the ROI process and starting the negotiations with the social media provider.

Second, it is critical for marketing leaders to understanding the value that the social media provider can contribute to the company's current business practices. Is the primary goal to acquire new customers (prospects) or develop more relevant messaging to current customers?

Finally, the management team must have a well-trained analyst who understands the strengths and weaknesses of each of the aforementioned issues, and the ability to communicate valuable data-driven modeling insights to relevant stakeholders.



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# Deploying Analytics to Deliver Omni-Channel Growth for Retailers: A Three-Step Guide

By Manik Aryapadi, Principal, Strategy and Operation, and Nora Kleinwillinghoefer, Manager, Management Consulting and Consumer Goods, A.T. Kearney

Today, we have an explosion of data. It is estimated that two and a half exabytes of data are created every day, with 90 percent of the world's data created in the past two years.<sup>1</sup> With so much information at their fingertips, it often becomes challenging for retailers to focus on the right priorities that drive the right outcomes.

Retail customers are extremely demanding, with information available at their fingertips. An A.T. Kearney study found one in three consumers use digital channels to research a product before purchasing it, either in-store or online. It has become more and more important in recent years for retailers to use analytics to drive customer growth through improved traffic and conversion.

The key question for retailers becomes: "How do we accomplish this?" The answer may be simple enough, but the execution of these strategies requires a capital investment of time, effort, and a willingness to acknowledge that the retail landscape has transformed and only those retailers who adapt will survive. In our experience working with numerous retailers, we have found there are five simple ways to drive profitable omni-channel growth by unlocking the value of analytics.

## 1) Data-Driven Approach to Improve Store Traffic

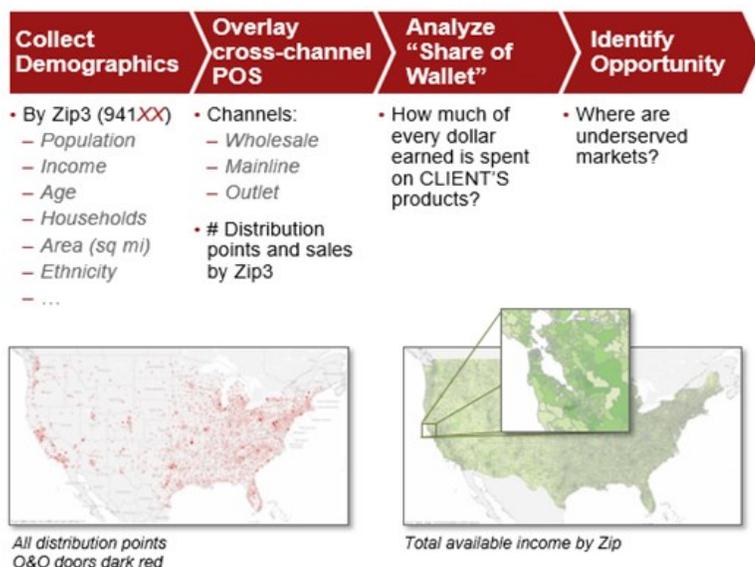
Though 90 percent of retail sales still comes from physical stores, retailers have been suffering through double-digit declines in traffic over the past five years because more and more consumers are moving online. Department stores have experienced these declines more significantly than others, and have closed more than 20 percent of their retail fleet.<sup>2</sup> The primary reason behind these store closures is that U.S. malls have more shopping square footage per person compared to other developed nations. At 24 square feet of shopping space per person, the U.S. has more than twice the amount of square footage as Australia. What we are observing is a rationalizing of the shopping space to reflect changing demographics and consumer behavior.

So how are leading retailers coping with these changes? They are using data to make informed decisions on where to open new stores (see figure 1) and how to drive traffic to existing stores (see figure 2). By using a combination of demographic data, geolocation tools, current share of wallet, and mapping of cross-channel sales, retailers can build a comprehensive map of areas

where they are underserved, and then tailor their store footprint accordingly. This approach makes use of external databases and tools, and marries them with internal data sets to design a comprehensive analytics-driven approach for building the right set of stores.

Another way to boost in-store traffic for existing stores is by relying on the right keywords and advertising strategies to drive traffic locally as opposed to a national one-size-fits-all model. Our experience indicates that targeting digital placement by using localized targeting can improve in-store conversion by about 30 percent. As an example, ad placements on search engines that are tailored to local city or suburban locations can isolate and identify variances in consumer choices and behavior. This means a

Figure 1: Criteria for Selecting New Store Locations



<sup>1</sup> See: <https://www-01.ibm.com/software/data/bigdata/what-is-big-data.html>.

<sup>2</sup> On Solid Ground: "Brick-and-Mortar Is the Foundation of Omnichannel Retailing" <http://fortune.com/2016/12/02/shopping-malls-trouble-data-charts>.

retailer may show up in search engines at a higher rank when a user searches for a chai tea latte in New York City's Times Square and could show up in a similar rank for coffee in Brooklyn, New York. This retailer can capture the most searched terms in different metro areas and tailor its search results accordingly. This integration between physical and digital retail is a critical element in creating a holistic and integrated consumer experience, and to make sure that all potential omni-channel sales are captured.

Figure 2: Select Examples of Using Digital to Boost Traffic



- Kiko uses a **Digital Ceiling** to drive traffic to its flagship stores
- **Digital ceiling is interactive** and changes colors/patterns based on user input



- Sephora has piloted the use of a **Digital Beauty Workshop counter** that helps **customers decide on make up shades, browse product** and also **shares beauty tips**



- Mark and Spencer uses a **virtual digital rail** in Amsterdam
- Customers can **browse, order product** and are **offered suggestions** to pair with current buys (upsold)

Lastly, retailers should take a “clicks and bricks” approach to drive traffic to stores. Adopting digital technologies helps retailers define a unique value proposition and attract the right kind of customer in-store. As shopping behavior changes, consumers want to go to a store that is a “destination” location, and using digital to enhance the consumer path to purchase is a surefire way to drive traffic.

## 2) Leveraging Analytics to Drive In-Store Conversions – Both Physical and Digital

*Use existing Point-of-Sale (POS) data and hindsight to guide buying decisions.* POS is the data that is closest to the consumer and represents the purest form of demand. It is critical to leverage this data at the right level of detail into a product's demand plans. Information available at the stock-keeping-unit (SKU) level should be aggregated and disaggregated to ensure that all attributes of a product are factored into the planned forecast. It is also important to link POS data to Allocation and Inventory Management Systems. Today's allocation systems can read sell-through at POS, then react and replenish based on what product is selling and what is not.

Most importantly, stores should make every attempt to link both their physical store sales and e-commerce sales within the same trade area so that they can develop a comprehensive view on omni-channel sales. It is critical to make sure that these systems are linked together so that the processes are automated and seamless. Linking these systems will allow retailers to send the right product to the right store at the right time, thereby maximizing the chances of making a sale. This will not only contribute to the top line, but also will make inventory investments more productive. An A.T. Kearney study found that one in three consumers switch brands if their product is not available on the shelf. Customers leave the store disappointed if their desired product is not available both in-store and online. In addition, numerous retailers suffer through declining conversions when the right product is not available in the right store at the right time. Getting back to basics, and integrating both physical and digital store sales within a clustered geographic area will help drive conversion and profitability.

*Focus on optimizing store planograms based on actionable information.* Consumer shopping has significantly changed over the past few years, though traditional store layouts have not. Innovative retailers often reimagine the consumer experience journey and the path to purchase by redesigning and updating the store planogram to keep the shopping experience fresh (see figure 3). By combining foot traffic with in-store heat map data, retailers can identify: where consumers linger in a store, what their impulse buys are, and in-store path maps to drive placements and fixtures. Though videos have traditionally been used for loss prevention within

Figure 3: Example of in-store planogram optimization.



retail, access to immense computing power and scalable infrastructure have made it easier to deploy video analytics for in-store decision making. This ranges from comparing different flow paths to changing fixtures based on in-store traffic and productivity. Though e-commerce has a leg up on physical brick-and-mortar stores in this regard, using video analytics is comparable to A/B testing in a digital domain, where different versions of webpages displaying merchandise are analytically tested, and various scenarios measured to drive optimized profitability.

*Make digital work.* As digital technologies go more mainstream, retailers are incorporating mobile strategies to drive in-store conversion and making it easier for consumers to shop in-store. In-store kiosks and mobile apps are inte-

grated seamlessly with the physical store location to enable consumers to browse product, reserve, and buy product online then pick up in-store or ship from store.

Home Depot, as an example, has launched a mobile app that integrates a store planogram, and directs customers to the appropriate location to make a purchase.

### 3) Improve Size of Market Basket and Share Through Data Mining

One of the challenges facing retailers today is wading through large data sets to identify patterns and correlations. Retailers know it is infinitely easier to get consumers to buy a product once they are in-store as well as encouraging them to buy additional products when ancillary suggestions are made either explicitly or implicitly. Both upselling and cross-selling are powerful ways for retailers to improve units per transaction and Average Unit Retail (AUR). We would divide the process of upselling and cross-selling into two different segments – one where the customer has not yet entered the store and one where the customer is already in-store.

To better plan product-based, in-store profiles and local demographics, it is important to understand store sales histories and ensure that assortments are tailored to localized tastes. Stores that have localized assortments often outperform their peers who do not. In our experience, retailers have seen an increase, from five to 10 percent in AUR through assortment localization, and this leads to fewer unplanned markdowns and improved turns. It is also important for retailers to invest in techniques such as affinity and cluster analyses to make informed decisions on what items are best paired together, and how they are effectively displayed in-store. For an apparel retailer, for example, that was implementing a collections-oriented strategy, we found that by changing visual merchandising in-store to better reflect a “head-to-toe” approach rather than a category-based approach, basket size improved significantly in pilot stores versus control stores, which had adopted the traditional approach.

For in-store customers, delivering personalized upselling and cross-selling messages is challenging. Sophisticated indoor geolocation targeting is still in its infancy, though there are apps like Shop Kick that give retailers access to data and check-ins and upsell and cross-sell accordingly (see figure 4). Target’s Cartwheel

Figure 4: Examples of digital integration with physical stores from REI, Sam's Club and Home Depot.

- REI uses a “clicks and bricks” approach** to retailing by integrating its mobile application with in-store digital kiosks
  - Allows customers to **place orders online in-store** and view inventory across their entire retail system
  - Enables **“Self-Service”**
- Sam's club has an app (Scan & Go)** that allows **customers to skip the line completely** and scan items as they are placed in cart
  - Customers only **show the receipt on the way out** to **verify that all items are paid for**
- Home Depot, a large specialty home improvement retailer** embarked on an **Omnichannel activation strategy in 2014**
  - Launched product locator app** to help customers in-store, and live chat and messaging capabilities

app also helps customers find products, and offers personalized couponing based on purchase history and scanned items (see figure 5). We predict that more retailers will use mobile technologies to drive up in-store purchases.

In conclusion, retailers can drive growth and profitability by using the three-step approach described above. In addition, appropriately using all analytical tools at their disposal will allow retailers to buck showrooming and build a loyal customer base by offering a unique value proposition to today's discerning consumers.

Figure 5: The Target Cartwheel app features coupons, a product locator and more.<sup>4</sup>



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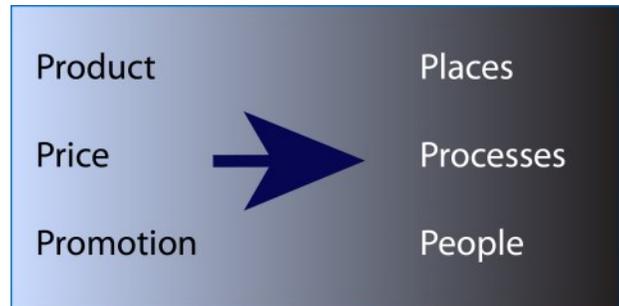
<sup>4</sup> See: <https://corporate.target.com/article/2014/10/target-fall-apps>.

# Digital Displays Give Omni-Channel Wings

By Garry Wicka, Head of Marketing, LG Electronics

**W**ings give lift, enable new views, and allow soaring with seemingly no effort.

Retailers and brands have long depended on the Three Ps of product, price, and promotion to be their wings, but the highly competitive landscape of multi-channel and the empowered consumer are now defining the need for a new set of Three Ps, the productivity of places, processes, and people. Each of these offers tangible measures of enterprise performance that can be applied to quantifying the customer experience. The latter are fundamental to success in omni-channel retail.



Omni-channel is the label given to a retail ecosystem that allows the enterprise to embrace and leverage online and mobile commerce while integrating these with their operating asset base of physical stores. The objective is to serve the consumer’s journey of discovery and fulfill their needs and wants through approaches that meet their ever-growing expectations. Continuously improving the productivity of places, processes, and people will also focus on increasing traffic and conversion as the imperatives of retail success, regardless of the channel.

Physical retail stores and customer service locations offer the most engaging and immersive experience with customers for brands. The physical store, as a high-value element of the omni-channel strategy, warrants approaches and investment that contribute to the achievement of overarching brand goals, as well as specific outcomes.

In a twist on omni-channel that offers more physical browse/buy options, rather than just widening existing customer paths to purchase, TJX Companies announced plans to launch a new off-price chain of home goods stores. This recognizes the importance of the shopping experience as an outing, with browsing and discovery.

Physical retail matters to major brands. For example, Ernie Herrman, CEO of TJX, told Wall Street and retail analysts on a February 22, 2017,<sup>1</sup> earnings call that TJX would introduce a new store concept that will not compete directly with HomeGoods, adding “Our approach will be to differentiate these two U.S. home concepts to encourage customers to shop both stores, which has been key to our successful growth at T.J. Maxx and Marshalls in the U.S. and Winners and Marshalls in Canada.”

Digital customer experience can be described as a culture of business development and of change management to exploit the enabling effect of technology elements for ever-increasing benefit to all stakeholders. Visual communications and media presentation bring the in-store experience to life and help to drive engagement in other omni-channel elements.

According to the Forrester Research Inc., Global Business Technographics Priorities and Journey Survey 2016, 73 percent of retail businesses identify that improving the customer experience is a priority. This is second only to increasing revenue. The same survey report reflected that 68 percent of retailers have made personalization and experience a priority, but 53 percent lack the right technology to personalize.

The opportunity cost of poor customer experience is high. The TimeTrade State of Retail 2017 report declared that customer experience could boost a retailer's revenue by 5 percent. This reflects that retailers missed out on a \$150 billion payback during 2016. The TimeTrade Survey showed that millennials, in particular, would pay up to 20 percent more for a better retail experience, indicating that not only revenue, but also margins and loyalty can be dramatically impacted by customer experience. Visual communications and media presentation can bring the in-store experience to life for shoppers, while driving engagement with other omni-channel elements.

<sup>1</sup> As reported in the February 23, 2017, article at RetailWire.com titled “Will a new TJX concept put more hurt on department stores?”

Digital is the trim tab of the customer experience rudder. A trim tab is a small wing on the tip of a larger wing or a rudder that uses little energy to help move the larger wing or rudder that turns the vessel to its new course. Digital display images and messaging readily enable new approaches to improve customer engagement and experiences. The concept of the “endless aisle,” in which all inventory is visible to customers, is an example of integrating inventory visibility with online-enabled and in-store purchases. The display and interactive technologies to accomplish this are readily available and all interests are well served.

Image presentation of High Dynamic Range (HDR) quality that can optimally present products in these and other categories enables a level of product promotion, merchandising, and representation quality that is essential to generating increased traffic and conversion, as well as premium pricing and margins.

As noted in The Media Monthly report from Peter J. Solomon Investment Banking in March 2017, summarizing media sector activity, “One of the most pivotal developments in digital signage has been the integration of proximity-based communications. Signal transmitters called beacons detect the presence of a mobile device and trigger a customized response that can appear as anything from a message delivered through the retailer’s mobile application to a greeting displayed on a nearby digital sign. Proximity-based communications send personalized deals allowing store staff to deliver better service or provide product recommendations based on shopping history.”



The report reflects that “beacon-integrated digital signage provides highly customized, highly scalable customer engagement opportunities at the point of sale. As evidence of its effectiveness grows, retailers are taking notice. For example, Levi’s has incorporated beacons into its digital billboards, prompting a passerby with discounts and directing them to nearby stores. Whole Foods Market is using beacons in conjunction with its Powershelf technology, which dynamically displays pricing in some stores.”

The report adds, “the value-add of beacons goes far beyond these applications. By enabling digital signage to recognize individual customers and react accordingly, beacons enable each customer to experience each digital sign differently, adding new opportunities for retailers to generate sales and learn about their customers. Beacons, augmented reality, RFID, and other interactive digital-signage solutions can be combined to deliver holistic experi-

ences to the consumer. A customer shopping for apparel may walk past a beacon-enabled digital sign that analyzes his purchase history and infers what products he will most likely buy. The sign displays a personalized discount for those items and provides directions to the nearest store. When he arrives, a digital display greets him by name. The display tracks what he browses and shows information on each product, offering recommendations and building the shopper an outfit in the process. He then tries on all his selections simultaneously as several versions of the shopper wearing different items appear in the AR mirrors. The customer taps the items he wishes to purchase and pays for them using a touch interface. From outreach to sale, interactive digital signage transforms the consumer experience into a seamless, personalized process.”

The Internet of Things (IoT) now provides a myriad of image-triggering mechanisms such as proximity and demographic detection, or “lift and learn,” in which product handling for examination enables product features and benefits to be communicated to encourage conversion, upsell, and cross-selling.

Other types of flat panels for media and information presentation bring unique experiences to customers visiting the physical store. Transparent displays that present animated and video messages on a display area that is also see-through are well suited to retail windows, cabinets, coolers, and as fixture and architectural features.

A digital mirror can overlay the customers’ body outline with product images. This reduces time and effort in the fitting room on the part of the customer as alternate products are more easily assessed and accessorized.

Interactive display using touch or gestural navigation immerses the consumer and others of the shopping party in the discovery and selection of products. Gamification for entertainment and edutainment is well suited to interactive display.

For some retailers, dynamic signage is a coping mechanism to bring vitality to tired-looking physical stores and a way of deferring investment in locations or departments that may be badly in need of upgrades. This “quick fix” of dynamic media can also buy time during which more thorough analysis and planning can be conducted .

In all cases, dynamic signage and place-based media presentation deliver the simultaneous benefits of branding and merchandising along with improved ambiance and vitality. Robust media can attract shoppers to increase store traffic and deepen the shopper loop.

Some approaches that can maximize the value provided by dynamic signage include using the digital display medium to:

- 1) Drive traffic based on moments that influence purchase by engaging consumers according to what they want to know, do, learn, try, and buy.
- 2) Create better same store performance by digitizing approaches and automating them for greater efficiencies, economies, and productivity of places, processes, and people.
- 3) Provide moments of engagement and experience that are memorable.
- 4) Add a virtual aisle to bridge the in-store and online experience. This will include inventory visibility, cross selling, upselling, easy ordering, ship to a preferred location, and e-commerce.
- 5) Move customers to service approaches that best serve their shopping and buying approaches.
- 6) Promote using dynamic displays and personal engagement based on analytics. Analytics in retail is the science of integrating a customer’s needs, history, habits, likes, and wants. All these are in the head of the consumer and increasingly in the cloud, so retail success through analytics is moving information from the cloud to the eyes and hands of customers.



The overwhelming force of value is the new inertia resulting in the assessment and the implementation of visual media. As in all retail improvements, change management is the critical success factor.

Within omni-channel, the physical store must continue to serve brand interests and consumer needs for improved customer engagement. Dynamic signage gives omni-channel wings by improving the in-store experience and driving customers to online and mobile brand and product engagement. Digital displays give omni-channel wings.



Garry Wicka is Head of Marketing, Commercial Division, LG Electronics USA, Inc.

# Prescriptive Analytics: Is Retail Ready for Prime Time?

By David Weinand, CEO and Co-Founder, Connect Ventures and Co-Founder, EKN Research

When the team that founded EKN Research in 2012 sat down to launch our first report, it was an easy decision to focus on Big Data. In that report, we discussed the volume, velocity, and variety of the data and which variable was causing the most challenges in the ability to harness value from it. We used the first report as a benchmark and the 2014 report detailed some fascinating insights, for example:

While retailers found the concept of analytics to be very strategic, their ability to harness its value was still a huge problem. It was widely accepted that Amazon's analytic capabilities were out of reach of the terrestrial brick-and-mortar retailer.

A retailer cannot differentiate with analytics by merely focusing on data, tools, and resources. It must codify its strategy through its organizational structure, decision framework, and intellectual property (i.e., develop some proprietary algorithms that add value).

Three years is a lifetime in technology and with a discipline such as analytics, one could expect that the retail industry is yielding big value across multiple functional areas. One thing is for sure, the advancements in machine learning and processing power are enabling businesses to benefit from the true power of prescriptive analytics. While most retailers still only make use of descriptive and some predictive analytics, prescriptive is where things get exciting.

What is the difference between predictive and prescriptive? The best definition comes from Steve Schnur, Executive Director of Merchandise Planning and Analytics, MGM Resorts International, a speaker at the recent PRI Digital Retail Forum event.

**Predictive Analytics**  
tells you:  
What will happen if  
a decision is made.

**Prescriptive Analytics**  
tells you:  
What you should  
actually do about it.

Going back to the 2014 EKN Research study, no retailer has come close to approaching the sophistication of Amazon in terms of analytics. In fact, close to 90 percent of retailers still rate themselves as lagging Amazon.<sup>1</sup> Of course, until very recently, Amazon could focus its analytics efforts on its online business without regard to the complexity of stores. Most studies make it clear that there is a lack of clarity from legacy retailers on a defined analytics strategy. There are areas where prescriptive analytics can offer immediate benefits including: pricing, customer behavior/marketing, merchandising, and operations.

## Pricing

In his remarks, Steve Schnur said, "The retail stores at MGM Resorts are leveraging analytics to truly understand the price elasticity (or lack thereof) of everything from 'Roloids to Rolaxes.'" They know that unit sales will fall or increase based on pricing and that margin will follow suit. However, where MGM is reaping huge, seven-figure benefits is by using its analytics tool to understand exactly where price will optimize both price and margin.

<sup>1</sup> 2016 RIS/CGT/EKN Analytics Study.

Amazon is famous for dynamically changing prices millions of times a day based on competitive pricing and demand. Brick-and-mortar retailers with a unified pricing strategy across channels cannot mimic this. However, they can take advantage of in-store analytics to track where customers are shopping and their purchase habits. They can also leverage loyalty systems to track purchase habits and then employ analytics to cross tab the two data sets and develop pricing strategies based on customer segments.

### Customer Behavior/Marketing

The fact is, stores can and should be a key differentiator in the world of retail. The ability to provide a key element of experience and personal touch should be used to maximum advantage. There are powerful tools available to give brick-and-mortar retailers many of the benefits that ecommerce retailers have in terms of visibility while maintaining a personal touch.

While it appears that beacons are now on the same trajectory as RFID adoption (with a decade or more of testing, piloting, and acceptance), it does not seem to be stopping the start-up landscape. New retailers see the opportunity to gather and analyze data to drive the customer experience (see graphic at right). Regardless of whether beacon adaptation is widely accepted, there are still many ways retailers can collect customer data and leverage it through analytics to improve the customer experience. Sales data, connected devices (such as magic mirrors), video data (traffic, dwell times, etc.), unstructured social data, and anonymized web search data all enable the “killer app” – personalization. Seeing and understanding habits and preferences throughout the entire buyer journey and using that data for upsell and cross sell opportunities and to add “stickiness” for the brand is where analytics will shine.

### Merchandising and Operations

Leveraging prescriptive analytics to ensure better in-stock position may not be as sexy as customer analytics but it is equally, if not more, valuable. A single view of inventory is a critical starting point and a major priority for retailers. Having a single view of inventory across stores and online channels greatly enhances the ability for analytics platforms to create accurate demand forecasts and subsequent replenishment models. MGM Resorts uses such a platform and is able to plug in custom variables based on the replenishment needs of its widely diverse mix and ensure in-stock position for maximum sales.

Maximum sales are not realized unless stores are properly staffed at the right times, which is where prescriptive analytics also can help. Using multiple sources of data such as sales, traffic, and geo-location, analytics engines can not only tell a retailer when the peak times occur, but also can suggest optimal staffing configurations to ensure maximum conversion. Of course, the opposite holds true as well; no retailer wants to be paying for associates that have nothing to do.



Source: CB Insights

## Who Owns Analytics?

In the use cases above, it would be easy to argue that each department is responsible for its own analytics. In fact, most retailers are organized that way. However, to truly optimize the benefits of today's analytics engines, retailers should either have a dedicated analytics team across all functions or a hybrid shared services team comprised of resources absorbed from key departments as well as pure analytics.

Analytics, as a discipline, is a game changer. Advances in machine learning and connected devices are setting the course for prescriptive analytics. However, like so many technology beachheads over the last 20 years, the vast majority of retailers follow the "wait and see" approach with analytics, even as they watch their businesses deteriorate.



David Weinand is the CEO and Co-Founder of Connect Ventures and Co-Founder, EKN Research.

## Retail Analytics Roundtable: Big Data, Analytics, and the Omni-Channel Customer

The Platt Retail Institute and Retail Analytics Council hosted a roundtable discussion regarding the state of retail analytics with several members of the Council's Advisory Board to explore various perspectives associated with their approach to integrating retail analytics in their retail stores. This discussion was sponsored by Tyco Retail Solutions and supported by the Council of Supply Chain Management Professionals.

Retailers are using analytics to manage inventory, understand customers and their behaviors, support omni-channel strategies, and improve supply chain management. One of the participants in this roundtable suggested that the industry is "coming out of the crawl phase and into the walk (phase)." Implementation of retail analytics is not without challenges, including legacy data systems, data warehousing, finding the necessary talent to manage data sets, and convincing senior management that smart analytics contribute to the company's bottom line.

Six panelists, representing five retailers and Intel's Internet of Things Group, were asked to respond to a series of questions. Generally, the questions probed the participants' thoughts on the opportunities and challenges of retail analytics.

Steven Keith Platt, Director and Research Fellow, Platt Retail Institute, and Director of Research, Retail Analytics Council, Northwestern University moderated the roundtable. Platt began by asking the participants to introduce themselves.

**Cy Fenton:** I'm the CIO for Books-A-Million, which is the second largest brick-and-mortar book retailer in the U.S. We're sort of a super-regional in 37 states. I'm also the president of our digital book business, which includes all of our dot-com-related assets. We run a couple of e-commerce websites and all of the store-related e-commerce and digital assets. I also run all of the B2B that flows through the digital channels.

**Dan Gutwein:** I'm the Director of Retail Analytics at Intel Corporation.

**James Morse:** I am the Omni-channel Optimization Manager at Belk Department Stores. We are a full line department store chain in 16 states across the South.

**Paul Gross:** I'm with National Vision. We run five optical retail store brands throughout the country – about 1,000 locations all under different brand names. Until recently, I was the CMO, and now I'm running omni-channel leads as we're bringing some transformation to our business.

**Robert Mills:** I'm the CIO of Tractor Supply Company. I also have responsibility for strategy functions across the organization. A little bit about Tractor: we're a specialty retailer with approximately 1,600 locations across 49 states. We're primarily brick and mortar, but like most retailers, we are placing a great deal of emphasis on digital, putting a lot of focus on data, big data, customer relationship data, etc.

**Steve Holland:** I am the master of Slurpees and hotdogs – Chief Technology and Digital Officer for 7-Eleven – with 8,700 locations in the U.S. and Canada, and part of an overall larger retail organization with 60,000 locations worldwide in 18 countries. We are primarily brick and mortar. We're doing a number of things related to delivery (Amazon lockers) and unbanked payment. I have all the technology systems and digital under my responsibility.



Cy Fenton  
President, Digital  
Business & CIO  
Books-a-Million



Steve Holland  
Senior Vice President and  
CIO  
7-11, Inc.



Paul Gross  
Senior Vice President  
Omnichannel  
National Vision



Robert Mills  
Senior Vice President and  
CIO  
Tractor Supply Company



Dan Gutwein  
Director of Retail Analytics  
Intel Corporation



James Morse  
Omnichannel Optimization  
Manager  
Belk Department Stores

**Platt:** I would like to direct the first question to Steve Holland. Can you define, Steve, what retail analytics means to you?

**Holland:** For us, retail analytics is really the insight associated with the selling and cost, gross profit, and movement of our products for all of our stores. Those analytics, which give us insights, allow us at a store-by-store, franchisee-by-franchisee level to understand what's happening in the stores, as well as the complete market around them so managers can make better, faster, more efficient decisions on what to carry and how to price it as it relates to their individual neighborhood stores.

**Platt:** Dan, maybe you can address that as head of retail analytics at Intel?

**Gutwein:** I probably have a little bit different take on this than most people in this roundtable. Intel has had meetings with probably 5,000 retailers over the last 10 years. It comes back to when you look at analytics from a brick-and-mortar standpoint. It's all about how you provide dot-com-type analytics in a brick-and-mortar store. Our belief is that, as you work in your e-commerce space and you understand who is logged in or registered and what they're looking at, what they're interested in, you can do all kinds of data capture, look for trends and recommend certain things at certain times. See what people put in their basket, what they abandon, and so on. Why can't you do the same thing in a brick-and-mortar store? I think we're pretty close to actually bringing that to reality and to life.

You don't have analytics unless you have data ingestion. You don't have good analytics unless you've got good data that's actually clean and staged well. That's primarily what we're working on as far as that fundamental I call "piping," or how you get the analytics where you can actually do amazing things with it. Those amazing things, essentially, are the dot-com-type analytics that you can bring into a store.

**Platt:** The next question is for Rob Mills. Rob, how significant is, or do you believe retail analytics will be, to the success of a retail organization and how so?

**Mills:** I think we probably would all agree it's critical and it's becoming more critical with the consumers changing and shifting their behaviors as to how they shop and the speed of how they want the goods, and how they want them delivered. Having more analytics around the customer preference, what they need versus what they prefer, the type of merchandising the retailer may need to have online or in-store and/or where the best channel is to fulfill the product are all critical data points. I believe more customer analytics, as well as analytics associated with merchandising, will be even more critical than in the past.

What I have seen, at least in my experience, is in the past it's been more around merchandising productivity and how analytics played a role in making sure you were selling the right goods but it's much more broad now. It's about how you're interacting with that customer and predicting what they're going to buy and helping to encourage that purchase or that level of engagement.

**Platt:** Paul, how significant is and will retail analytics be to the success of a retail organization? You just became head of omni-channel so I'm assuming your firm has an evolving perspective on that.

**Gross:** For our business, we're not as inventory-based as other companies. We have a made-to-order business because every order is custom for our customers. For us it is more about understanding the customers and what the customer needs are and when they're going to enter the cycle, how they're going to enter the cycle, and where they're going to enter the cycle. Moving to that omni-channel world and knowing that every two years, when someone comes back into the category, how they're entering, what are they searching for, and why are they coming in and doing that.

In essence, it's all going to be understanding the customers and their behaviors and then really being there to serve them how they want to be served. Our business will never be a huge e-commerce business, but we know we have to have an e-commerce presence to be able to accommodate our customers. The analytics will help us better understand how they're using us, where they're using us, and why they're using us.

**Platt:** At what stage in the adoption implementation process do you believe we are as an industry generally? In terms of adoption, what are some of the challenges you've seen to adoption and how can these be addressed?

**Fenton:** The theme that you've heard so far is that the customer is changing. I really feel like we're in the age of the digitally enabled customer. Five or 10 years ago, maybe 10 to 15 percent of the total sales in brick and mortar were influenced by digital. Now it's more like – and these are numbers I have seen coming out of

Google and Forrester – 75 percent. We're at a place where our customer's first touch for the store is on their mobile device or in some sort of digital channel.

In terms of the challenges, a lot of folks have large legacy data sets, and data consumption and visualization tools that aren't really up to the task of understanding what's happening where interaction starts in one channel and then finishes in another. How you engage with that customer, how you track them through multiple touch points, and how you can make their process be as frictionless as possible are the reasons that we're doing what we're doing with retail analytics.

**Morse:** I feel that as an industry in total, we're coming out of the crawl phase and into the walk. It's going to be a long time before all of us get to the real run space because we all have a lot of legacy practices and legacy systems. All of us are great at the traditional merchandising type of analytics, of understanding product and turn and margin. We have a good track record of understanding our online customers and what they are doing and how they are interacting. We have a way to go until we have that entire 360-degree view of the customer.

Some of the challenges around that are the consolidation of that data and having systems that can pull all of these different data points together, but also retail as an industry has had a lot of major challenges and big bodies of work that I'm sure all of us has had to deal with in the last few years, including changes in payment and EMV. I think those are some of the bigger challenges that we face.

The way that we address those is simply by biting off the biggest chunks and continuing on and that's what we're doing here in trying to move from understanding the product to understanding the customer. That means not just what the customer wants but also how the customer wants it, and how she wants to interact with us and our product, our store, and our digital assets.

**Platt:** Steve, do you believe that the implementation of a retail analytics strategy can make a positive economic contribution to a retailer's success and if yes, how so?

**Holland:** I think James was spot on. The only thing that I would add is that it's about changing behavior. As we move out of tools and technology and systems, and understand more about the consumer, it is really about how I change or influence that behavior to do something else. Once you get into that, I think it is much more art than science and interpretation of information and data. I think the discussion on crawl faster, walk, stumble is very, very appropriate. That is a difficult thing to change but I think we're on a path for that as it relates to the consumer's information.

Absolutely, a retail analytics strategy can deliver both locally, which is what I really talked about before, but also at the macro level, as it relates to understanding what is happening through the data, through the insights, and then turning it into being much more a matter of predicting when those economic changes are actually occurring as it relates to geography. As neighborhoods change and gentrify, so does our understanding of those changes through the data and those insights. That cannot only help our local franchisees and store managers, but also at the large macro level, it certainly also contributes upstream into the supply-and-demand chains for us. It helps us to make smarter, better buys, earlier buys, or to exit something faster so we don't have to keep the inventory as long as we have in the past.

**Fenton:** One of the big challenges I see to activating retail analytics properly inside a retail organization is talent, because it is way more art than science once you get all the data together. It is about the analysts and what they do with this data. Our main focus is on how to make the data actionable.

How do we create some information that can then create an action that would have a positive economic contribution? I think having that talent is really a struggle. I know it is in our organization; we're not very big and we have these large, very nimble internet competitors that have all the money in the world and lots of things going for them. They attract the best talent most often. I think that's a big challenge. Intel has a great team of folks and maybe we can leverage partners like that as we move forward, but having that talent on your team is really what you want.

**Gross:** I think the other piece is just convincing organizations that retail/data/customer analytics roles can really add value to the company and that you could measure their performance. I think that we as a company have become so focused on product and operation-based processes that really digging in deep on how you can change your business through analytics and how that in itself can become a profit center requires a change in that culture of thought. You want people to think of that as a beneficial role as opposed to a role that doesn't add value to the bottom line.

**Platt:** Do you foresee a C-level function within retail organizations, such as a chief data officer? Is it being embraced to that point Rob?

**Mills:** I do see some organizations that see the value of it. It's about the skill set of the organization and the maturity of how they're embracing the data and the value they are seeing. I don't think you're going to see companies that will hire C-level execs who will just focus on data unless it's specific or unique to their business. You are going to see pockets of analytics specialists who will become more culturally engrained in the organization, especially as this practice continues to mature and there are more people with the necessary skill sets and the tools become more available.

**Morse:** I concur with that. Because of the nature of large retailers especially, the data is going to be siloed. Obviously that's what we are working against but it still is specialized to different teams in certain ways. For most of the organizations that I work with, I would be surprised to see them unify that with a C-level position.

**Mills:** I can share with you what has happened within our organization. This past year, we created a governance team that will focus on data that is cross-functional, but one individual still does not directly own it.

**Platt:** Dan, what do you see in that regard?

**Gutwein:** I'm seeing a lot, as you guys have seen too. We have some extremely talented folks here and we do a lot of work with MIT and Stanford and some of the other groups around as well. Honestly, I always say it is really hard to find a really good data scientist. I find a lot of spreadsheet jockeys that have done some training, but it is really tough to find somebody who can visualize and look at some correlations and some strong data and give not just predictive, but prescriptive solutions for retailers. It is a challenge finding that kind of talent.

I think the biggest challenge that we're seeing with the whole data analytics play is siloed organizational databases. Consider the way that a lot of retailers have grown up through acquisitions, mergers, and bankruptcies, and so on. I've talked with retailers that want us to go do some data analytics from their existing data. Sometimes, I can't even find the data, let alone stage it in a way that we can send it off to some talented data scientists.

I met a CMO recently and he has different siloed databases, one Oracle, one SAP, and all these different workplace management databases, with all this data coming out of it, but it's unstructured and hard to get at it. It was almost impossible to even look at the data, let alone make some prescriptions. I think it's a big challenge. I just go back to one of your earlier questions. I'd ask everyone, if you're going to have to design a store from scratch today, my guess is nobody would design it the way that they are designed today.

Those are some of the fundamental challenges that you have as far as how you have to spend capital to actually get data in a good organized fashion so you can actually go analyze it. Then, how do you attract the talent when you're up against the Amazons and Googles of the world that have a different structure so that they can actually go out and analyze?

I have seen a couple of organizations that have put a C-level analytics officer in place. I think it's really beneficial because now they're starting to look at data not in disparate, isolated fashion and silos, but actually looking at how it comes together and how the different data elements work together to give different projections. I think it's a move in the right direction. I hope it sustains and grows throughout the industry, but again you go back to the fundamentals of, "Is our data organized?" and "Can we do something with it?" It's really a challenge.

**Platt:** There are a couple of areas where we think retail analytics can contribute value, such as the expense containment process, improvement in customer advantage, revenue enhancement, leveraging talent, etc. Steve, you're a CIO. You probably have to have some methodologies for return on investment for various IT programs. Please expand on a couple of those areas that your firm might be thinking about or you might be thinking about. Also, how do you address the issue of measurement?

**Holland:** I'll start with measurement. We typically run all of our projects through what we call return on invested capital or ROIC. That is our standard fare for determining projects along with IRR payback. Not all our projects clear the hurdles and that's where senior level management will make a decision depending on if we

want to get that advancing capability or make an investment for the future where it may pay off. Secondly, among the areas I would single out, there's actually one that's not listed. It's really around sales and gross profit margin.

As we take a look at our existing store base, we're a neighborhood store and so with that, we give the tools to each of those store managers. These tools help to optimize their product assortment and selection as well as how it relates to pricing around their location and what products they are selling or not in that specific area. Product assortment, related to sales and margin, is number one for us as it relates to retail analytics.

**“As we take a look at our existing store base, we're a neighborhood store and so with that, we give the tools to each of those store managers. These tools help to optimize their product assortment and selection as well as how it relates to pricing around their location and what products they are selling or not in that specific area.”**

We're on the journey from a customer advantage: what's in their market basket, what are they responding to – what offers and when, how often are they visiting us or how many items and dollars are in their market basket? The customer advantage is really about beginning to understand what that looks like and the cadence. We have a unique cadence where I have customers coming in every day or every other day; we would consider them heavy users within our network. Then, there are individuals who come in every three or six months. It's really understanding those light, medium, or heavy users and how to move them up into the next category of purchase or market basket. Those are the two big areas we focus on.

**Gross:** I come at this from the marketing perspective and not from a technical perspective. As I go to conferences and meet with CMOs from other organizations, one of the things I hear about frequently is projects, and a lot of times, digital-based projects, analytics-based projects, technology projects all have to go through the scrutiny of a financial or an accounting perspective through the CFO or the VP of finance. In our company, we don't have to do that, but what I find is that

these individuals get frustrated because people in financial roles look at it from strictly a perspective of cash out and what's going to happen and projected returns.

This isn't a marketing guy who doesn't understand returns. They are return-focused. Sometimes the decisions become so focused on the short-term financials that the financial guys don't understand the real impact on the business. Somehow these decisions have to get out of the hands of a CFO or VP of finance and be made at the COO, CEO, president level and not get constrained by old time standards of how we make decisions.

**Morse:** Like everyone else, of course we do review each of our undertakings for ROI and try to understand ROI. However, there is also return on objective and we have to balance that especially when it's a return on objective for the customer's user experience. We're a department store so we know that user experience is everything that we have. There are times where we can throw that ROI out the window and focus on the fact that this is something that our customers are telling us. With their feet or with their mouse clicks, they tell us it's important to them and so it should be important to us.

**Fenton:** I think that's more of a short-term versus a long-term view. You're doing those projects that meet return on objective. An objective is to satisfy your customer and increase repeat visits. That will come to pass, hopefully, if you do your project right, but it won't show up in a hard dollar increase in sales or reduction in expense over the next 12 months. Now that we're private, we have a different perspective than we did when we were public, but a lot of folks are focused on quarterly to 18-month ROIs.

I think some of these projects, especially as you start to build out ways to communicate with the visually connected customer, are going to have a longer payback than that because they're somewhat expensive.

It's new and these are things that you just have to invest in. Our very first one of these large-scale big data projects was a number of years ago and it was all about merchandising and supply chain, optimizing our assortments at store level. We have a situation where there are literally 10 million SKUs that I could choose from and a merchandising scenario where the store can only fit 70,000 to 80,000 SKUs.

You have to be really very careful about what you choose to put in the stores. In a world like we have, where it's commodity business with lots of product choices, picking the right things to go in the stores has a degree of benefit and a high degree of risk. We looked initially just to manage in-store inventories and manage our

returns to our vendors. That had a very significant payback not only in sales but also in expense containment and in process improvement. Because of the success of that project, we were able to build a team and encourage a culture of analytics within the enterprise. Our goal was to have people want to go back to the team and say, "Hey, I have another problem that I'd like for you guys to think about." As we started building those out, we built out functional solutions in different areas based on that one big success.

**Platt:** We see two very practical issues around implementation of a retail analytics strategy – centralizing data and distributing insights. We get engaged on projects and all of a sudden, we have a retail client staring at transporting terabytes of data into a data lake and it becomes very complex. Rob, do you have any thoughts or guidance on the question of centralizing data and distributing insights and how that is being approached or should be approached?

**Mills:** I think it's a hybrid. I can tell you within my environment, we have done the best that we could to centralize some of the data but not necessarily the analysis of the data. We try to keep our master data from customer to merchandising to sales in a common repository. It's easier to be able to interpret and read and analyze, but the actual analytical work is being done in a distributed manner. However, there are groups specifically more focused on merchandising and store productivity or our online or channel-specific productivity that are centralized under the finance team. We look at it both ways. From my experience I think it really goes back to the culture, the type of skills that you have as well as some of the legacy systems that you might be faced with, because they're expensive and daunting to overcome in the consolidation.

**Platt:** What about the distribution of insights? How are you managing that process?

**Mills:** It's typically by group. There is a wider range of distribution of data for insights that occur based upon the role that you play within the organization, but specifically, it's typically a group. If they are owning customer insights, they have the ability to determine who actually could help influence that data. But what you're finding is more real time data that's starting to occur in the industry. How do you influence to lead them back into the store or online real time to change that behavior if the customer is not happy with the service or an outcome that they might have received? Or, if they have had a great positive experience, how do you share that? It's a hybrid within the organization. It really depends on the type of skill or the group that has embraced data.

**Gutwein:** I think that the answer to all of this is that if the data is not actionable, you're wasting your time. Your ROI will never prove out. No one will ever buy into it and your associates certainly won't take any action in the store. It has to be really easy to understand. As far as structuring data right, this is not a simple task for companies that have been around for more than a decade and even for companies that have been around less than a decade. It's not a simple task to structure data and actually go do some analytics on it. I'll pick a really well known case study because it's public.

Three or four years ago when Steven Quinn from Wal-Mart came out and gave us an analytics report about when humidity is at a certain percent and the wind is blowing at a certain number of miles per hour, they sell more strawberries. Fantastic, right? His whole thing was, "I just want to make sure we have strawberries. We're not discounting them. We can maximize our revenue." You talk about challenges. How do you make sure you have enough strawberries in those particular areas? How do you make sure you place the right orders and ship them to the store and that they're actually fresh? How do you make sure you price it right?

It echoes back to massive change management – infrastructure, capital investment, all of those types of things. Someone else mentioned today that they know certain customers are coming into their stores a certain number of times per week. Just to get that information, to get that data, you have to put an infrastructure in place. You have capital expenditures. You have to take the data and have it organized in a certain fashion. It actually takes some analytics so you know they know Steven Platt is in our store again for the third time this week. He most likely has interest in this particular item.

What we're seeing is a lot of retailers moving to data analytics much closer to the edge and into the actual individual store environment because there are just so many things that you don't need to send back to your data center, which is going to take you weeks, if not months, to actually analyze.

A lot of that stuff actually needs to happen on the edge and be computed in milliseconds, to actually add value, while someone is ready to spend. That's a trend we are seeing. The industry calls it fog data now instead of big cloud data. It's filtering out what you need to actually send and make decisions out in the store versus sending back to the corporate office.

**Platt:** Steve, with all the stores you have, how do you get insights at the store level and the district level and figure out if people actually are using it and following up on it?

**Holland:** It depends on what data and information we're looking for or who is looking for it. We have a number of centralized data stores used to understand what I call historical data, which is typically point of sale, and know what's happening and where it is in those geographic areas, how people are adopting products or not. I'll tag onto the last comment. Our loyalty CRM systems have all been designed in true real time. You talk about milliseconds; it is really arbitrating what you get from customers in stores. So we'll say, at the point of purchase, they get the best deal or they get the best option. That has been our philosophy as it relates to how we deliver that type of information or decision choice or best offer to a consumer at the point of sale. That has been a very different journey for us. We have been heavily batch-oriented with a lot of our information and data but in this true real-time world, where we measure millisecond hops back and forth as it relates to our loyalty program, we believe data is really providing an additional competitive advantage for us in-store while the customer is there.

**Platt:** Is anybody implementing RFID technology or considering RFID technology? Do you have any perspectives on it as a data source?

**Morse:** We have done some tests with RFID in our stores. We have confirmed our basic underlying assumptions, which were the goals of those tests in our use cases, which were around merchandising compliance or around inventory. We saw an ROI in both of those.

For us, it's hard to make a leap to either self-tagging or paying the premium for the tagging at this time. We do think that, eventually, it's going to become an important data point for us, not just for the obvious loss prevention and supply chain uses that are baked into the thing, but also for understanding our product and where it is. That is important from an asset standpoint but for me, I also have an ulterior motive, which is to enhance my user experience with this.

When we start talking about omni-channel experiences like buy online and pick up in store, I need to know not just that it's in the store but where it is in the store. I can see situations in the future where there are interactive elements that are responding not just to you and your interactions with the touchscreen, but also to the products that you're carrying with you or that you're showing. Also, way-finding or other user interactions can be envisioned down the road. As far as what roadblocks we have, it's really the expense and labor of the tagging.

**Fenton:** RFID is an interesting topic and we've been talking about it as a larger group amongst the CIOs. My view on it is that the folks that are vertically integrated are the ones that will have the most success in this because they can build it into their manufacturing process. In our world, where I have commodity products, we really are going to be hesitant to increase expense by trying to tag these things coming in.

We have a buy, sell, and trade business where every single product in the store – 300,000 units – is serialized. I know exactly what I bought that one unit for and what I sold it for. It's quite a lot of data and just for the 30 stores, it's more data than my 250 stores running on my regular systems. It's interesting because it generates quite a bit more data and quite a bit more granularity. I would crave that, because it'll give you just a much more detailed view of what's happening within the store.

With RFID in general, that location piece I think is set to be game changing. We've heard stories out of Lululemon, where they converted one of their large stores to 100 percent RFID. They really have a great use case over there. It will be interesting to see what they find.

**Gutwein:** I spent about four years back in a lab working on the whole use case around how we solve these inventory issues because even with all the great analytics you're getting through customers, if they walk in your store and you don't have the product, you don't know where it is, then it's worthless and so is the analytics you've just done. You just know that someone was unsatisfied in your store. We've been trying to tackle this for a while.

James (Morse) was talking about how you understand where customers are and what they're interacting with. You can do it now in milliseconds and I fully understand the burden of the tagging cost for the items and the value of the vertical manufacturers to that stuff. This is all coming together in what I call a data fusion model where all of those different analytics as far as what's in our store, where is it in our store at any given time and who is interacting with it, that dot-com analytics in the store is really very rapidly becoming a reality.

I've yet to find a retailer that honestly has better than about 60 to 65 percent on-shelf compliance in its stores. It's just not there. Until you get the inventory piece right, the other analytics are really nice to have but we have to make sure we have product to put in people's hands and sell to them.

**Morse:** We absolutely see the value and we want to be ready. Three years ago, we surveyed our stores and found 11 percent of our SKUs were tagged without us taking any action. Two years later we had 19 percent of our SKUs that were tagged without us taking any action. There's going to be a tipping point. We're looking to be able to jump on without investing in that additional expense of funding the tags.

**Platt:** Anybody else have some insights on RFID? Rob, you guys playing with that at all?

**Mills:** No. Right now we're not. In my previous days at Sears, probably eight or 10 years ago, there was a lot of activity and I can tell you personally that I see the benefit. I see the value of everything that has already been articulated. I think for us, it's just a matter of maturity and other priorities that we're focusing on right now.

**Platt:** Anybody want to chime in on any of the questions or ask the panel any questions that we might not have advanced?

**Holland:** I'd be very curious to see how many people are dealing with a cloud-based solution to analytics in their organizations and to what depth.

**Fenton:** We're not doing anything in that area. We all have talked a lot about moving terabytes of data and I think at the end of the day, that's what has slowed down our looking at those cloud solutions. We have lots and lots of data that I don't want to transport – if I can help it. I'd rather build infrastructure internally right now.

**Morse:** Most of our legacy systems are on-premise. As we move forward, our philosophy is cloud first. As we build new capabilities, for instance, in in-store behavior analytics, we're moving that out to the cloud. As far as the big data layer, it's still on-premise for us for now. We are not planning a rip and replace of our entire on premise infrastructure.

**Fenton:** It will take a long time for a lot of retailers. As you add solutions that generate real-time information, you can definitely move some analytics out on the cloud. We're doing some real-time analytics projects with Euclid (traffic counting) and other similar products. While those are cloud-based, all of the core analytics live back at the ranch.

**Platt:** Is part of that just legacy or is it security or privacy concerns?

**Fenton:** We don't have security and privacy concerns about cloud storage in general. For me, cloud is not necessarily strategic; it's tactical. Where it makes sense, and I don't want to add to the data center, then I'll move it, assuming we are talking about infrastructure-related offerings. If it's point solutions, I'll certainly look at cloud.

I have, and will have for some time, a large physical infrastructure footprint. It's running at about 50 percent capacity. As I build out more capability, the question becomes, "Am I going to pay two times as much on a subscription for the same service, or am I going to leverage the capital investment I have already made and have to maintain for other systems?"

**Morse:** For us at Belk, it's really a matter of where our focus should be. At the end of the day, we sell fashion and home goods. If it's not in the realm of selling fashion, should it be our focus? For some things, it should. Some things that are so core to the mission that we're on, that we should do those things in-house. If we think it's not really key to that mission, if it's really just a supporting function, we're trying to move that off of our plate as much as we can.

**“... it's really a matter of where our focus should be.”**

**Platt:** What's interesting from my perspective is when people ask us what they should do. "We need to hire a data scientist." I ask, "Do you know what a data scientist does?" If you're looking for somebody who has a capability to understand your business and create models from that, that's not a data scientist. A data scien-

tist is fluent in running SaaS and other things but they don't typically have the retail insights and all the practical business understanding. I've seen that mistake made. Dan, what have you seen in that sphere?

**Gutwein:** I definitely agree. As a matter of fact, most of the folks that run our data science groups are more focused on business than programming. Even more important is making sure that the users are going to be able to understand the insights generated. I've seen some data science reports and there is no way I could make any use of them. They are incredibly cool with great correlations. If you are going to push something out, some sort of actionable insight in your store, and you've got a \$10-an-hour employee looking at it, it should be simple and easy to grasp.

**Morse:** There's a big difference between knowing the humidity and knowing how many strawberries you should buy.

**Gutwein:** Exactly.

**Platt:** I would like to thank our panel for some great insights into the use of retail analytics.

# RFID Roundtable: RFID Challenges and Opportunities

The Platt Retail Institute and Retail Analytics Council hosted a roundtable discussion regarding the challenges and opportunities retailers are facing implementing RFID technology. This discussion was sponsored by SML RFID, and supported by the Council of Supply Chain Management Professionals.

## Introduction

By Dean Frew, CTO & SVP RFID Solutions, SML Group

There are few technologies being applied in retail that can positively impact so many elements of the retail enterprise as RFID. As more and more retailers use the technology to achieve a new level of customer service and inventory utilization, the growing list of business cases from these brave adopters is extremely compelling. It is important to remember that many in the retail industry are still managing inventory the same way as they did 30 years ago. Thirty years ago, there was no internet. While technology has changed the industry significantly, most retailers still manage inventory with a SKU barcode and with manual counting. RFID (non-line of sight) and item-level (serialized) technology enable a new era in retailing: "Retail 3.0." The resultant new retail technology market, which has RFID at its core, is only approximately 8 percent penetrated (end of 2016). This will be the biggest change in how inventory is managed for the next 30 years – starting in apparel and footwear, and rapidly moving into sporting goods, cosmetics, and high value/perishable consumer packaged goods.

One of the key findings from all the business case studies is that retailers are discovering that their current inventory accuracy is woefully inadequate to support the demands of the new consumer. Often, accuracy is below 70 percent at the assortment level. Consumers are demanding an unprecedented level of inventory responsiveness from their retailers. Scenarios like one-hour response time to buy online and pick up in-store, or browsing online to check if an item is available at a nearby store, requires inventory accuracy greater than 98 percent. Retailers are also driving this change by the need to utilize inventory across the entire estate to fulfill customer orders. Retailers have documented that by using RFID solutions, sales lift of between 3 and 10 percent is achievable, inventory reduction of 5 to 10 percent is possible, and costly third-party inventory audits can be eliminated. When one adds some of the omni-channel benefits that will be publicly documented in 2017, the ROI that a retailer experiences from investing in RFID is measured in months, not years, and results in a "decluttering" of the inventory management function for a retailer.

Retailers that have deployed in a simple, straightforward way – using proven technology, leveraging RFID source tagging, and integrating with existing systems and processes – have quickly reaped the most benefits. While there is a lot of emerging technology on the market, the tags, readers, and software that exist today perform quite sufficiently to generate great returns for retailers and benefits for consumers.

This roundtable discussion focused on retail application and adoption of Radio Frequency Identification (RFID). The



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President & COO  
Council of Supply  
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Professionals



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Andrea Farris  
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Ned McCauley  
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Michael Jacobs  
Chief Technology Officer  
J.Crew



Tom Schuetz  
Chief Information Officer  
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Venkatesh Shankar  
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Eric Spiel  
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Modell's Sporting Goods

conversation coincided with the release of a 15-month study of RFID, which presented an extensive amount of primary data provided by Macy's, recently published by PRI and the Retail Analytics Council. Read the PRI Working Paper "[Quantifiable Benefits and Analytic Applications of RFID Data.](#)"

Steven Keith Platt, Director and Research Fellow, Platt Retail Institute, and Director of Research, Retail Analytics Council (RAC), Northwestern University moderated the roundtable discussion. Platt began by asking the participants to introduce themselves.

**Rick Blasgen:** I'm with the Council of Supply Chain Management Professionals. My background includes 25 years in the food industry with Nabisco and then Kraft Foods and Conagra Foods, all in supply chain positions. The Council is a professional association, not a trade association. We provide a lot of education. We are membership-driven and very volunteer-driven. Our goal is to connect, educate, and develop the world's supply chain professionals. We have local groups called Roundtables that are like chapters, and we host conferences all around the world including certification programs, education, and the like.

This conversation brings me back home to when I was the leader of the Grocery Manufacturers of America Logistics Committee. That was back when RFID was started and we were there to develop the business case for manufacturers for RFID.

**Eric Spiel:** I'm the CFO for Modell's Sporting Goods. I have been here seven years and have spent 30 years in retail and wholesale companies prior to that. We're a 127-year-old, east coast, fourth-generation, privately held company. We are just starting our RFID journey.

**Ned McCauley:** I'm the Director of Store Performance Solutions at Tyco. I've been working in the RFID solutions business for about five years, and have worked with lots of tier one retailers including the one highlighted in PRI's research. I think we're in the first inning of a great RFID evolution.

**Roger Kibbe:** I oversee omni-channel and logistics technology strategy for Gap, Inc. I've been here 13 years, and I have more than 20 years experience, primarily in e-business and retail.

**VenkateshShankar:** I am a Professor of Marketing and Director of Research at the Center for Retail Studies at Texas A&M Mays Business School. My research spans the whole gamut of topics in the retail space, ranging from omni-channel, to mobile, to the Internet of Things. I also study artificial intelligence (AI), virtual reality (VR), and augmented reality (AR). My connection with RFID goes way back. When it was first introduced, I was a visiting professor at MIT. I did write an article in the Supply Chain Management Review about RFID and since then I've been tracking that progress.

**Tom Schuetz:** I'm the CIO for hhgregg and have 30 years of retail IT experience.

**Andrea Farris:** I am VP for Retail Systems and Operations at Walgreens. I have been in retail for 20 years, 14 of those in management consulting with Accenture, and the last six years at Walgreens. I currently oversee our inventory management and supply chain teams, and recently took over new store technology and innovation for Walgreens.

**Michael Jacobs:** I'm new both to the Council (RAC) as well as my new role at J.Crew. I just celebrated about 90 days here as the Chief Technology Officer.

**Platt:** Eric, you are piloting an RFID project you started toward the end of the year. Maybe you can talk about some of the major benefits associated with the technology, and why Modell's decided to pilot RFID.

**Spiel:** The business case for us is really around replenishment, inventory, and how inaccurate, after 12 months, our actual versus our perpetual records are. Our accuracy is below 60 percent and is a fairly wide range by category in-store when we measure the SKU level at the end of the year.

We were looking at various solutions and RFID certainly seems to be the one that many are going after. We are a seller of branded goods; we're not vertical. A major disadvantage is that most of our vendors are not source tagging. So we started with a test right around the end of October or beginning of November in one of our largest stores. We had a pretty successful experience with just seeing what happens when you correct goods that can be replenished, and the lift that you can get, however, it was only about 20 percent of the area that we were testing.

**Platt:** Ned, you have a lot of experience. What are some of your customers' use cases?

**McCauley:** I think the one that Eric mentioned is primary. Over and above inventory distortion, which a lot of retailers experience and are coming to grips with, there are a number of use cases. One simple one, as a good starting point, is what would we call display execution, or display audit. That's the idea of taking items that you would have, just samples on the floor and providing a display item, versus the back stock. What we found is that often times, there is a huge gap between the amount of unique styles that you have available for sale, but not on display.

RFID can be used to create a simple and fast audit process to ensure that the display items that you have on the floor actually represent close to 100 percent of what's available in back stock. When you close that gap and you can count and audit that function more frequently, you're much closer to being 100 percent compliant and that drives sales, as you demonstrated in your research with Macy's, Steven. I think display audit is a simple starting point that is a proof point we have found to be pretty successful, as one example.

**Platt:** Roger, you have been asking us about RFID and have had interest in it for quite a long time. Why do you think it might be a good solution for retailers?

**Kibbe:** We are right around the same percentage for inventory accuracy as was previously mentioned. Back-to-front replenishment is the biggest opportunity, e.g., ensure the product is on the floor for your customers. There have been a fair amount of challenges here for retailers.

We do use stores as Distribution Centers (DCs) to support ship-from-store, and have the ability to reserve an item online for pick up in the store. Without RFID, we're doing a lot of "gymnastics" to make sure that that item is indeed in the store when we promise it to the customer, or when we try to allocate it to a DC or to the store for shipping. There is a lot of reserved inventory held back to support that. RFID would really unlock the ability to sell to zero.

**Platt:** Any words of advice for someone considering RFID, Roger?

**Kibbe:** Part of the challenge is asking the right questions in the business case to prove the value of RFID. Upfront planning is important.

**Platt:** Rick, you are a supply chain expert. You just mentioned you had some experience with RFID. What were some of the benefits and issues you ran into?

**Blasgen:** The benefits are primarily in inventory management. I remember I was involved early on with some of the pilots in retail back when the technology wasn't as good as it is today. There was always a lot of discussion from a major manufacturer standpoint, for example, "do we attach it (the RFID tag) to a pallet? Do we attach it to a case? Do we attach it to a unit, and how do I get my suppliers to embed it in their corrugate?" There were a lot of great ideas back then. I think a lot of the current activity around retail and inventory management and theft management, and so on, has great play, but for a broader supply chain view, we are always trying to understand how we can use that technology across the vast complex supply chain from Shanghai to L.A. to Kansas City, and embed it in greater and broader ways to do business and to take a lot of the volatility out.

I think there is a resurgence going on. Current supply chain folks are finally getting their heads above water, coming out of a wild recession where they hunkered down and didn't do a lot of investment. I've talked to a lot of my supply chain brethren who are once again interested in what's going on in RFID.

**Platt:** To the extent that retailers are really motivated/interested, the brands don't seem to want to help the process work. In other words, tagging before they ship it to the DC. Are you starting to see some of your shippers think differently now?

**Blasgen:** If we can prove to them that the overall benefits are there. They see a cost, and ask, "What do I do with all the data that it generates? How do I make better decisions with all this data?" I think there's a lot of interest. We should sort of revamp that whole area of, "yes, we generate a lot of data, but we can also benefit the supply chain, and here's how."

**Platt:** Andrea, can you please share how far along Walgreens is with its RFID implementation, as well as some of the issues of deploying in what is generally a smaller footprint store?

**Farris:** Some things preceded my time here, but back in the 90s, I think Walgreens had the largest deployment of RFID readers through Goliath. We all know Goliath actually doesn't exist anymore. The intent at that time was to adopt display tracking, and the ability to get the display on the sales floors.

I don't believe it was implemented; it is not currently live anyway. We are, to your point, starting to look at it again. I think display compliance and execution is very important for us, for our customers, and for our suppliers. We're looking at different ways through RFID to track assets across our supply chain. This way, I'll know exactly if it was delivered from the DC to the stores, if it's in the store's backroom, and when is it going to make it out on the sales floors, even where it is on the sales floors. It will also help us to determine how we ensure consistency and accuracy of our merchandising plan, our customer plan.

Certain display locations, especially in a smaller footprint store, have a higher real estate value than others. So we are at the early stages of reexamining that, in the context of a broader in-store technology footprint where RFID is one thing, but sensor technology, IoT, and beacons are all connecting together. All of these technologies are providing the ability to tell us who has the information or where the information resides and how to make it available to our team members in the stores and our store managers.

For us, it's not just about implementing RFID so we can track it up here at headquarters, but how we get that information to the operators in the stores so they can generate alerts, reports, and exceptions when action is needed.

**Platt:** Venky, what's your perspective on the impediments to adoption?

**Shankar:** The speakers before me talked about the advantages of RFID, mainly not being out of stock, aligning front and back, and also somebody mentioned ship to store. I'm also starting to study "buy online and pick up in store."

For omni-channel fulfillment, RFID is very helpful in tracking and anticipating. More recently, I've been intrigued by Amazon Go. Amazon is talking about hiring 100,000 people and opening 2,000 stores. Part of it is they are trying to use the Go concept, where people can check out themselves, and that model will not work without good RFID. That means that they must have tested it quite a bit and found out how to make it work.

**"... all the RFID has been from a supply chain inventory management point of view. However, how can having the right RFID system make orders visible, trackable, and easily accessible?"**

I'm pretty interested in finding out how firms are trying to accelerate the adoption of RFID, without worrying about reducing costs, or persuading vendors and brands to tag. There are lots of retailers who are thinking that this is the wave of the future. If you don't have it, it's a must. So rather than finding out if I have an ROI or not, what's the best way to move forward? Those are the issues that I am intrigued about.

Related to that, Steven, is customer engagement. So far, all the RFID has been from a supply chain inventory management point of view. However, how can having the right RFID system make orders visible, trackable, and easily accessible? Will that lead to greater customer engagement at the store? Now there's brick and mortar, the online channel, omni-channel, and so on. How can we use RFID as a facilitator for that, rather than looking purely at cost metrics?

**Platt:** Roger and Tom, you are both students of store technology. You are on top of everything going on in terms of development. Do you see the industry moving toward broader adoption?

**Kibbe:** In the early 2000s, there was the supply chain initiative, case and pallet. There was a lot of effort focused on trying to understand what value RFID could bring specifically to the supply chain, and Wal-Mart, for example, took a very aggressive approach with its vendors. I think ultimately supply chains, at least at that point in time, were built for barcodes. While barcodes are imperfect, they are still pretty good.

The opportunity for improvement was a couple of percentage points at best. I think what many of us learned from that experience was that the big problem starts at the back of the store, where much of the inventory distortion occurs. So the supply chain was served pretty well by the barcode, and it is in the last few hundred feet, that ultimately, many of the challenges begin. That was one of the main lessons we learned. We thought item-level RFID, focused on the four walls of the store and the distortion that occurs there, was the sweet spot. That's one part.

I would say the second part occurred as Wal-Mart became very interested in looking at in-store distortion and how to improve it. Just as that was happening, Wal-Mart faced challenges that stopped the momentum.

**Schuetz:** I think the most compelling use of RFID I saw in practice was at Bloomingdale's in New York's SoHo neighborhood. The real key takeaway there was in denim. The customer takes a size off the rounder and the ability to replenish that rounder or shelf with that style and/or size of jeans within 24 hours avoided a markdown and maintained full selling price. This was a huge win for the store.

At Luxottica, we actually did embed RFID into the frames and were playing around with that primarily to counteract counterfeiting in Asia. I wonder whether some of the other technologies, like Bluetooth/BLE or similar, will leapfrog RFID at the item level in the store. I'm a big fan of RFID; don't get me wrong. I just wonder whether there will be a lower cost of entry for the newer technologies for merchants at the item level – not at the case/pallet level.

**Farris:** I agree and there might be alternative ways coming up in the future focused on what we, as the retailers, would like to accomplish with RFID – replenishment, loss prevention, and asset tracking. It could be a combination, in my mind, versus a single-use technology.

**Platt:** Michael, anything at J.Crew?

**Jacobs:** We have talked to a couple of vendors about the benefits of RFID, but no one has been able to demonstrate that there is an ROI significant enough for it to move off the dime. So, it's definitely in the back of mind, but no progress made to this point.

**Spiel:** I think the ROI is there if you are in a replenishment environment, which I would think J.Crew is – certainly if you can tag at source. The labor intensity of tagging in your DC or in your stores is just unbelievable. Then to have stores needing to hunt and peck, because not all of your goods are RFID-tagged, then we have to do an association between the RFID tag and the SKU at the store level. This adds a process that slows goods getting to the floor.

The benefits are there in replenishment. I was able to measure it simply because we were at the end of our cycle, and we had 11 months of deterioration in the inventory quality since our last physical audit. The lift for us is in being able to replenish goods. You can't sell, obviously, what's not there. In some of these programs where we know we can get back in stock in about a week or two at the most, our book records are telling our buyers and planners that it's on the floor and it's simply not there.

For me, it's a huge benefit that way. We just started with the display compliance piece, but we're having some problems with the stickers because we had to use stickers that could be peeled off for return reasons with Nike. The in-stock position of your stores is, for us, probably the number one opportunity to drive sales. Out-of-stock, you just upset the customer who doesn't have time to shop, and your team back in the office is without knowledge because your book records indicated an item is there.

There is a direct ROI. It's just a question of how big that can be based on your ability to replenish.

**Jacobs:** Or having the ability to actually identify the sources of ROI.

**Spiel:** The physicality in the store environment has been a little bit of a challenge for us, too. A store will get a delivery every single day. They bring stock into the back room, depending upon the timing of when they can do the tag association and get it into the RFID system. If those goods aren't associated when they do a count and the counter picks it up, we end up with false negatives. We have to do screening of back rooms to separate that from the sales floor and be able to hide tags so that they don't get counted, because the readers can read from quite a distance.

The technology actually works. It's the human element of it that has been the challenge. The direction that many companies are moving with active tags, sensors, and beacons, is taking the human element out of it, leaving the equipment to take care of it for you. It is a very expensive infrastructure, though I think it takes some of the errors out of the process.

**Platt:** I wonder if anybody has any thoughts or comments on a more fixed reader technology? This is the type of system that allows you to take inventory any time you want to, just by pushing a button.

**Kibbe:** The capability is great. I have seen stores where there is a reader about every four to five feet in the ceiling. The thing about having many readers is that the capability comes with high costs.

Still, in my mind, that is the future. If the cost comes down, having those in the ceiling or somewhere equivalent is ideal. If you can eliminate the need for associates to “wand” – along with the labor and the training that

is necessary for those associates to do that properly – RFID provides an anytime look at your inventory view, and that is obviously nirvana.

**Shankar:** I would be interested in hearing perspectives on the topic of NFC, the near field communication technology. This technology can be powered through software on smartphones, and so on. One of the auto ID systems that might leapfrog RFID is rumored to be some kind of a combination of NFC with other emerging technologies. Does anybody else have any view on this?

**McCauley:** RFID, in my view, is a component of the Internet of Things, which will include many super-low-cost sensors that will do a variety of things for a variety of reasons in the near future. I think NFC and RFID, as we know it, are compliant with the Electronic Product Code for retail. Mobile devices that are capable of NFC reads are part of that. At a high level, there is an ecosystem of sensors and devices that are starting to emerge that will collectively work to solve a lot of these problems. We are still in the early stages as the IoT ecosystem builds out. All of them, from Bluetooth to RFID and NFC, will play a role in many of the things we'll talk about.

**Platt:** Rick, as you talk to your shippers, do they see what's happening in retail? What will their role be and how will RFID impact them?

**Blasgen:** Some of them do, at least the more forward-thinking ones. They will always get you in a conversation around collaboration and how much information people are willing to share, up and down the supply chain. If they can manage inventory better and affect other areas of the supply chain, like transportation, they are going to be all for it. If it's a major manufacturer with capital-intensive plants that are designed to produce for long runs and infrequent changeovers and things like that, what does it mean to them?

The discussion includes, "Carrying costs aren't going to be the same. Interest rates are going to go up, which means that we are going to focus more on inventory regardless of whether it has a shelf life or not. It is just going to be more expensive to carry."

**Platt:** Help me understand something. I've read that Wal-Mart is having certain vendors basically do online fulfillment for them now, so the items are not even being shipped to the store. For example, a truck going from L.A. to New York might have to pull off on the side of the road for a helicopter or a robot-controlled drone to pick up a couple of items, then they can get said items to the customer quicker. It seems to me that all that intelligence would be top of mind for shippers, wouldn't it?

**Blasgen:** It is. In fact I was just at Uber in mid-December as they launched Uber Freight. They are light years away from scale with autonomous vehicles and things like that. What we will see as a typical consumer, for example, an Anheuser-Busch truck going down the road with no driver in it, that is not going to be something you are going to see in any great scale over the next four or five years. But what you have just described, a truck that is en route and a drone making a delivery, that's expensive. I think what manufacturers and retailers alike are dealing with is, what does that mean?

When e-commerce becomes 50 or 60 percent of my business, I'll ask, "what do I do with this real estate out there? And how does that affect the local delivery system? Do I still have mega distribution centers in cornfields in Iowa? Or do I need some other distribution system that's much closer to the density of the population? How do I set up a distribution system for that?" That affects the whole transportation system, and frankly, the whole distribution system.

**Kibbe:** I think you are spot on. The challenge is not only that e-commerce is becoming an even more sizable portion of your business, but also the growing consumer demand around promise windows and shipping windows. Like it or not, those expectations are there. In the future, everyone is going to have to meet these new expectations.

What do you do? Certainly, you can use your store as a distribution center. You can leverage the back room of an existing store or create a "dark store" in an urban environment that essentially is a DC. I think leveraging your store real estate is probably one of the better opportunities. Now, one of the problems of the ship-from-store that we have is cost. The DCs are very efficient at shipping items to a customer. It is not so efficient in the stores.

The challenges are in operational and training issues. The question becomes, should retailers take some of their logistics expertise and bring that to the stores? Or even in a big store, should retailers have a logistics

person working there? These are things that retailers are exploring and thinking about right now. They offer a grand opportunity to handle the promise and delivery challenges and pressures on every retailer.

**Platt:** Tom, how many stores does hhgregg have?

**Schuetz:** We have 220 stores and ship from each in addition to our distribution centers. We also have a high-end appliance brand called Fine Lines that we continue to grow. Anytime IT tries to add one more task to an “already busy” store associate, we get pushback. Our business is primarily big-ticket items, which is a difficult sell to begin with and closing the sale is only half of the job – we still have to coordinate in-home delivery and be successful. Anything requiring labor hours – which retailers have been historically driving down over the past 10 years – creates a challenge.

**Platt:** Folks are finally waking up to the benefits of RFID, I believe in a big way. From display compliance, inventory accuracy, omni-channel, and fulfillment back to front, they are all great use cases. We have some great data coming out on all of that, that I'd love to share with all of you and get your opinion, but I think that the data has even more uses. That will even make that ROI analysis much greater.

**“Folks are finally waking up to the benefits of RFID, I believe in a big way. From display compliance, inventory accuracy, omni-channel, and fulfillment back to front, they are all great use cases.”**

One of the use cases we talk about, which I firmly believe is going to happen at retail, is dynamic pricing – where pricing is going to need to match and change fairly consistently. Now, this might be a few years off. Kroger, for example, has implemented a digital shelf-edge display that carries video capable of instantaneous price changes. As you start incorporating inventory, weather, and traffic data, all of a sudden that RFID data – accurate inventory data, where the inventory is, where it is in relation to the customer – becomes incredibly valuable as you view having a true digital store, which I think is necessary for survival.

**Shankar:** I'm glad you raised the issue of dynamic pricing. One of the obstacles of dynamic pricing in the brick-and-mortar and online environments is the transparency issue. You would like to dynamically price by different customers according to their willingness to pay, the time of the day, demand levels, and so on. Unfortunately, if your price is changing based on availability of goods and the environment, it would be very hard for you to customize pricing for different people. So, I wonder how retailers will take care of this without shoppers talking to each other and learning that someone picked up an item at a higher price versus lower price in the same trip.

**Platt:** The fairness issue that surrounds that is going to take awhile. However, if you think about it, we already do that with commodities such as hotel rooms, airline tickets and rental cars. These are all based on supply and demand and other factors. But there are applications beyond that.

For example, I have a cut of beef that I am selling for \$5 a pound. There are two days left until its “sell-by” date and it has not been purchased. I'm going to either sell it or have to dump it. Maybe if I move that price down to \$4 a pound, I can salvage some margin. So, dynamic pricing is not necessarily only motivated by gauging the customer in the store. Another example: there are eight feet of snow in Chicago and I need a shovel. Guess what? They don't have dynamic pricing, but I know the price is going up. That's reality. I think there are a lot of operational issues that this type of application could solve.

**Shankar:** These examples are stand-alone because they don't involve customers interacting. In a store environment, for expiration issues, if you drop the price within an hour and that same customer is shopping in the store and now sees a different price, that is the problem. Amazon abandoned that experiment when people started seeing different prices when they were sitting next to each other in the same room.

Is there a way to operationalize it in such a way that that's not an issue? It's about making people feel, “Oh, that's reasonable. That's fair because it is raining and I have to pay more.” That's the kind of thing that I was thinking about.

**Platt:** Michael and Tom, what do you think about using RFID data in other ways, or are we still just trying to get the RFID system in the store?

**Jacobs:** Again, early read at J.Crew is I think there are bigger fish to fry right now, and I think this is going to take a backseat for a fair bit of time.

**Schuetz:** Similar to Michael's experience, I think for a grocer like Kroger, it makes perfect sense. We are "everyday low" and part of our selling experience is for the associate to conduct a real time check against our competition with the customer, and we meet that price. We have a relatively small SKU count in-store, so labeling is not a tremendous labor issue for us, considering the expense to go digital – and we have crunched the numbers.

**Platt:** Would anyone like to add anything about what they are seeing in terms of adoption rates? Any advice for retailers? Eric, you're going through the fun part of piloting. Is there any advice you can offer?

**Spiel:** Our test is about the store execution, not the technology. We found a few areas to tweak and we have some excellent partners working with us. It is about making it work at the store level. The labor conversations that this group has addressed are going to be a multiplier going forward, just with rates going up. We have to make it efficient and effective for the stores. They have to buy in, and feel like they are getting a win. Most are incentivized on sales or other forms of profit, so their being able to see, touch, and feel the results – and in their paycheck is even better – is super important to compliance.

**Platt:** Rick, any parting advice you can offer?

**Blasgen:** I just think as I travel around the world, I wonder about India, China, and some of the European countries, and how we'll get to a global adoption. And, if we find life on Mars, what do we do about intergalactic supply chains?

**Platt:** Ned, what are you seeing in terms of adoption? You're out there talking to a lot of people. We're getting a lot of phone calls about RFID and it seems like people are really starting to take it seriously. What are you seeing?

**McCauley:** We are seeing the same thing. The foundational use case of inventory accuracy is much more understood today than it was even a year or two ago. That's due to a lot of work that you and others have done. I also think that the idea of how retailers leverage the physical stores for the purposes of omni-channel fulfillment is central to success. A key formula is knowing what you have and where it is.

Omni-channel fulfillment is definitely driving those who haven't looked at RFID in the past to look at it again. If you combine inventory accuracy with omni-channel fulfillment, with all the other secondary use cases – display audit, loss prevention, and fitting room conversion – it's starting to add up to be a really compelling ROI.

**Platt:** My thanks to our panel for their insights into the implementation and use cases of RFID technology.

For additional information on RFID and the PRI research at Macy's, please [download](#) the Working Paper "Quantifiable Benefits and Analytical Application of RFID Data."

# The Seven Deadly Sins of Retail Laggards

By Laura Davis-Taylor, Executive Vice President, Customer Experience, MaxMedia

For years we've been talking about the train coming that is now steamrolling some of our country's most iconic retail brands. I blame the leaders at the top of every company that is spiraling into oblivion. They were warned and they didn't listen. I don't know if it's due to arrogance or ignorance, but the outcome is the same and the implications are monumental.

It is not new news that life has changed and, with it, shoppers. The state of retail is now "evolve or die." The "brand brave hearts" that understand this are inventing new paradigms every day, using the dogma of old-school retail leadership as a blueprint for what not to do. Simultaneously, much of today's legacy brass is bowing down to short-term profits rather than long-term evolution and sustainability.

We all ask, "How can this be?" How can such issues, plainly apparent to the rest of us, be ignored at the peril of the company?

Having been in these trenches for a very long time, here are my observations on the Seven Deadly Sins of retail leadership:



*Arrogance.* It's the only path that they know, thus the only path that exists.

*Selfishness.* Retirement is coming and the short-term balance sheet is all that matters to get that bonus and get out while there's still time. To them, this storm is someone else's problem.

*Complacency.* It's too late. The ship is too huge, as are the problems. The time to start changing how they think, work together, plan their offensive moves, reward brave thinking, and evolve was years ago.

*Incest.* A systematic belief that talent should always be cultivated and elevated from within based on an outdated set of leadership screeners and company "fit," rather than subject matter expertise, vision, and the guts to challenge norms. As a result, everything remains the same.

*Narcissism.* Rather than caring about the customer first and foremost, decisions are based on the retailer's image, their needs, what they want from the customer and how to get it from them for their own purposes – regardless of the true cost. By blatantly ignoring the actual customer needs, truths are now easily unearthed and trust is the cost.

*Apathy.* They are unable – and unwilling – to get inside of the shoes of their customers, to listen, to understand, to respond, and to create checkpoint methods for success. Also, they have an innate inability to grasp that this as an ongoing, iterative process.

*Ignorance.* Looking at what is happening from a narrow 4 Ps (product, price, place, promotion)/transactional perspective, not the wide-angle lens of what is happening in the world, within culture, at retail as a whole, and within their category. Thus strategies and decisions are uninformed by critical influencers, easily disrupted by competition.

## The Path to Change

Like most business challenges, people are the center of the problem – but they are also the way forward. But they must change, and change is hard.

The psychology community has a fairly standard viewpoint on the phases of change, steps that are often employed for helping addicts. It is uncanny how applicable they are in relation to retail change management, and it starts with admitting that you have a problem. Here are the Six Stages to address the "Seven Dead-lies." Think about them as they apply to retail's current predicament.

*Pre-contemplation.* People in the pre-contemplation stage are not even thinking about changing their behavior. They often don't see it as a problem and when people point out the truths, they are met with anger and/or denial. This is a special challenge when the people closest to the issues (and potential solutions) could lose their jobs with their honesty, yet they are often the people that care the most.

*Contemplation.* At this stage, people are willing to consider the possibility that challenges exist and there is hope for change. However, they are often ambivalent and on the fence – there is not yet a commitment or a decision.

*Determination.* This is when reality is embraced and the brutal truths are attacked head-on. Risks and rewards are actively addressed and even though fear is present, planning occurs and a commitment to action is made.

*Action.* This is where the rubber meets the road. Plans are made public and support teams are put in place to make them happen and keep everyone on track. Support is critical, as it not only helps all involved stay on course, but it also creates external monitors. Others are watching and cheering, but naysayers now become vocal. Unfazed by them, pleasure is derived from disproving their negative predictions and success becomes apparent. Hope and self-confidence are restored and continued determination is solidified.

*Maintenance.* New thinking and patterns of behavior now become ingrained and leadership preaches, nurtures, sustains, and rewards them. The threat of a return to old patterns becomes less intense and less frequent.

*Termination.* Now there is no threat of returning to old patterns and temptations. There is complete confidence with no fear of relapse.

## **Tough Love for Retail**

As an experience designer, I have to be a human anthropologist. As a guerrilla anthropologist, I also have to understand psychology. One of the best pieces of advice I have heard from a psychologist to convey key points to someone without shutting them down is to begin with, “The story in my head is ... .”

I know this is a scary time, and every move you make is public and rife with monumental implications. I get it. But I want the same thing that you do – a successful business outcome. My fear is that we are not going to get there because you believe you have all the answers and will not open your mind to hearing others. This is true when it comes to your management teams, but just as important with your customers. Are you talking to them? Are you really listening?

Are you proving you care by your actions? Are you doing things to fix their issues while anticipating how to delight them? Are you thinking about offensive plans, disruptors, and new paradigms? Are you fostering and applauding new thinking? Are you doing this through your own self-references or through a holistic, global world view?

I believe in your ability to be successful. I believe in your ability to change. I want you on the cover of *Fast Company* talking about how you did it, not theories about the cause of your demise. Please, please – take action while there is still time. You can be great again, but you must go back to the basic understanding that it is about people. Care about people, do the right thing by them, make them feel valued, give them value, and do unique things that they love, and you will earn the ultimate reward – “their irrational loyalty.”

In the words of Jeffery Sears, CEO of Pirch and a shining light in retail, “Every customer that walks into my store is a gift and a privilege.” He believes in focusing not on what you do as a retailer, but why. To do so means starting at square one and questioning every single thing. By the way, Pirch is the second most successful retailer in terms of sales per square foot, does no advertising, and has an average store visit of two hours.



Laura Davis-Taylor is Executive Vice President, Customer Experience at MaxMedia.

I love retail. A key phrase that I am particularly fond of is, to “make everyone fall in love with shopping a little more.”

Retail leaders, do your part to reverse this spiraling downward trend.

## PRI RESEARCH ARTICLES

Platt Retail Institute undertakes a variety of research projects throughout the year. The results of this research are published as Research Articles (available for free download from the PRI website with registration). Some of the available PRI Research Articles include:

[RFID Roundtable: RFID Challenges and Opportunities](#). This roundtable discussion, sponsored by SML and supported by the CSCMP, features eight panelists who focused on retail application and adoption of Radio Frequency Identification (RFID).

[Retail Analytics Roundtable: Big Data, Analytics, and the Omni-channel Customer](#). Sponsored by Tyco and supported by the CSCMP, this is a roundtable discussion among six panelists, representing five retailers and Intel's Internet of Things Group.

["Big Data, Analytics, and the Omni-channel Customer"](#). Sponsored by Tyco and supported by the CSCMP, this research article is an overview of a roundtable and explores how retailers are using analytics to manage inventory, understand customers and their behaviors, support omni-channel strategies, and improve supply chain management.

[Customer and Inventory Insights Generated by Location-Based Analytics, and the Introduction of an Online – In-Store Behavioral Bonding Model](#). Commissioned by Tyco, this research article explains that with the rapid changes in shopping behavior and especially the relationship between online and in-store consumer activities, it is highly important for retailers to make technological investments in an integrated information platform.

[Deployment and Test of the Digital Life Experience at an AT&T Retail Store](#). This research, sponsored by Lighthouse Logic, describes a test conducted by AT&T in its Arlington Heights, Illinois, retail store. The test was designed to determine if having a more robust user experience in an interactive environment would lead to increased customer adoption and sales of the Digital Life service, an AT&T technology that encompasses a variety of home security and home automation options.

[The Future of Retail: A Perspective on Emerging Technology and Store Formats](#), was released in conjunction with the PRI Retail Forum at Digital Signage Expo 2014. This research, sponsored by Two West, examines the history of retail in the U.S., emerging technology that is impacting retail today, and how retail store formats will change in the future and integrate various digital technologies. The goal of this Research Article is to inform the reader about the disruptive changes occurring in the retail industry, and to help retailers prepare for and embrace evolving retail formats and technologies.

[Retail Attitudes and Adoption Trends of Multi-Channel and Omni-Channel Marketing](#), was research undertaken to gain insights into retailers' attitudes about multi-channel use and the adoption of omni-channel marketing strategies. While most retailers use multiple channels to reach their customers, it was noteworthy that the retailers who participated in this research expect email and mobile marketing to increase in importance while the physical selling location is expected to fall. This research was sponsored by Digital Signage Expo.

[Digital Signage's Role as Part of a Multimodal Approach to Deliver Emergency Messaging on Campus](#), explains the rapid adoption of digital signage networks as an important communication tool on university campuses. In 2010, PRI released a Research Report, "Communication Effectiveness in Higher Education," which illustrated that digital communication networks (DCNs) are becoming a viable alternative to older forms of on-campus communication. PRI conducted additional research, sponsored by Digital Signage Expo, Four Winds Interactive, Intel, and NEC Display Solutions, to delve further into the role of digital signage in delivering emergency messages on campus.

[The Media-Saturn In-Store Digital Experience](#), is an extensive case study that details the technologies, management, and unique software that European retailer Media-Saturn built to create, manage, and distribute content in different languages across its network. Not only is Media-Saturn Europe's largest electronics retailer, it arguably has the most advanced, complex customer-facing technologies of any retailer in the EU. This research is sponsored by Digital Signage Expo and Intel.

# PRI WORKING PAPERS

*PRI is the leading publisher of tactical research in the area of In-Store Marketing and Retail Analytics.*

With the assistance of leading academic institutions, PRI publishes groundbreaking industry research related to in-store marketing, digital communications networks, retail analytics, and more. PRI Working Papers may be [downloaded for free with registration](#).

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| PRI Working Paper No. 9 | <b>Quantifiable Benefits and Analytical Application of RFID Data</b>   |
| PRI Working Paper No. 8 | <b>Communication Effectiveness in Higher Education</b>   |
| PRI Working Paper No. 7 | <b>A Determination of the Revenue Potential from Digital Screen Advertising at a Major League Baseball Stadium</b> |
| PRI Working Paper No. 6 | <b>Test Results from a Bank Branch Digital Communications Network</b>  |
| PRI Working Paper No. 5 | <b>Impacting the Customer Experience at a Bank Branch through a Digital Communications Network</b>                 |
| PRI Working Paper No. 4 | <b>Deployment and Test of a Retail Digital Communications Network by the United States Postal Service</b>          |
| PRI Working Paper No. 3 | <b>Leveraging the Impact of Retail Digital Signage Advertising through Behavioral Merchandising</b>                |
| PRI Working Paper No. 2 | <b>Establishing Retail Digital Signage as a New Media and Measuring its Effectiveness</b>                          |
| PRI Working Paper No. 1 | <b>Implications for Retail Adoption of Digital Signage Systems</b>   |

# PRI RESEARCH AND EVENT SPONSORSHIPS

With the assistance of leading academic institutions, the Platt Retail Institute publishes groundbreaking industry research related to in-store marketing and digital communications networks. These are published as either [Working Papers](#) or [Research Articles](#). In addition, PRI seeks funding for other unique projects.

Sponsorship of PRI research offers a variety of benefits. These include establishing the sponsor as an industry thought leader, creating various promotional opportunities, and enabling the sponsors' association with the leading research and consulting firm in the field.

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# INDUSTRY EVENTS CALENDAR

## **April 26-28, 2017**

Retail and Consumer Goods Analytics Summit  
The Drake Hotel  
Chicago

## **May 9-11, 2017**

RFID Journal Live!  
Phoenix Convention Center  
Phoenix, AZ

## **May 15-17, 2017**

OAAA/Geopath 2017 Convention & Expo  
Hilton Riverside  
New Orleans, Louisiana

## **May 16-18, 2017**

Internet of Things World  
Santa Clara Convention Center  
Santa Clara, California

## **June 5-7, 2017**

ICX Summit  
Four Seasons Resort and Club at Las Colinas  
Dallas, Texas

## **June 6-9, 2017**

Internet Retailer Conference and Exhibition  
McCormick Place West  
Chicago, Illinois

## **June 8-10, 2017**

Society for Experiential Graphic Design Conference  
Loews Miami  
Miami Beach, Florida

## **June 10-16, 2017**

InfoComm 2017  
Orange County Convention Center  
Orlando, Florida

## **June 14-16, 2017**

Retail Executive Summit  
Four Seasons Resort  
Scottsdale, Arizona

## **September 8, 2017**

Retail Analytics Council Executive Development Program  
Northwestern University  
Evanston, Illinois

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