



Actionable Intelligence and the Customized Retail Shopping Experience

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■ *Summary*

“Big data,” the complex sets of data derived from any conceivable source such as social media interaction, digital images, mobile applications, cell phone GPS signals, and purchase and search histories, has fast become a priority focus for many marketers. So much so, that a large marketplace of user-friendly tools and applications is unfolding to provide organizations of every size the ability to gain actionable business intelligence from the vast amounts of data being collected.

This paper puts forth a present state overview of big data and how it is evolving within the retail environment, and then compares it to the data use of e-commerce pioneers. In doing so, emerging technology is introduced to address the question: Can retailers finally replicate the successful big data use-model of online giants and provide a truly customized retail shopping experience?

■ *Introduction: Intelligence Matters*

The analysis of big data is empowering an entire generation of businesses with new customer insights and predictive capabilities. With the widespread adoption and successful uses of big data, organizations can now gain insights formerly unimaginable into every aspect of their business, fundamentally changing the way companies operate. Big data, with increased velocity, volume, and variety of data sources, empowers decision makers across the entire enterprise. In fact, many smart companies place a priority on gaining business intelligence as a growth metric, much like sales and profits. These companies know that it is the intelligence obtained from a myriad of data sources that will provide insights to trends and anomalies that open the door to effective projections and predictions. And the facts back it up: Research from Accenture's analytics division confirms that “high-performance businesses-those that substantially outperform competitors over the long term and across economic, industry, and leadership cycles- are five times more likely to use analytics strategically compared with low performers.”⁽¹⁾

Actionable Intelligence: A Retail Priority

“The customers' new power is undeniable, and any insight that helps retailers predict what [a customer] will want more effectively - sometimes even before she knows it - is the top opportunity to improving current merchandising processes.”

(RSR) Merchandising Report, Optimizing Assortments to Reinvigorate Retail Benchmark Report 2012, by Paula Rosenblum and Steve Rowen,

Retailers have been collecting data for years. But it has not been until more recently that such vast amounts of data from multiple sources could be so effectively aggregated and analyzed, and such predictive insight obtained. The explosive growth of technology has changed retail, causing even nimble retailers to stutter in their efforts to keep up with the newly empowered consumer. If retailers are going to win their wallet share, they need to understand their customers' shopping behaviors and effectively predict and execute on that insight.

According to the Retail Systems Research (RSR) Merchandising Report, “Optimizing Assortments to Reinvigorate Retail Benchmark Report 2012,” by Paula Rosenblum and Steve Rowen, “Retailers' concerns about understanding customer preferences - and their own ability to respond to those preferences with new ideas about pricing and promotion have become their top business challenges.”⁽²⁾ Additional findings illustrate the enormous opportunity ahead for the use of predictive analytics across all functions of retail merchandising.

- 71% of retailers rated customer analytics as extremely important.
- The #1 business challenge to retailers is stated to be the “inability to identify new ideas and innovate quickly on price promotion, and customer preferences.”
- General Merchandise and Apparel (GMA) retailers are far more like than those selling Fast Moving Consumer Goods (FMCS) to cite “understanding consumer preferences” as a top-three challenge.
- 50% of retailers believe their merchandising would greatly benefit from better incorporation of customer segmentations and preferences in the planning process.
- Better incorporation of customer segmentations and preferences was rated as the #1 most important opportunity for improving the merchandising process.

Big Data & Retail: It's a whole new world

There are several drivers behind the phenomenal growth of big data. First is the incredible amount of data being produced. According to IBM, 90% of global data in existence has been produced over the last two years. And Eric Schmidt, Google's executive chairman, estimates that “humans now create in two days the same amount of data that it took from the dawn of civilization until 2003 to create.”⁽³⁾ The widespread use of social and digital media combined with location data stemming from the continued increase in mobile device use are the prime drivers of data growth.⁽⁴⁾ Every online search, social interaction, or sales transaction leaves a data trail that someone, somewhere is capturing. But, it is not all about the volume of data. Just as important is the velocity of data – the speed at which retailers are able to capture data, create insight, and act.

On November 13, 2012 Mike Lynch⁽⁵⁾ wrote an article for Computerworld titled “Barack Obama's Big Data won the US election.” In this article Lynch espoused the value of Obama's big data to not only predict the results of the election, but more importantly, actively influence the outcome. According to Lynch, the Obama campaign was engineered by data analysts who, using a multi-pronged engagement strategy, measured everything about potential supporters, and combined this with predictive analytics to determine what messages would be effective to persuade certain types of people. Lynch says “it wasn't the super expensive ads on the national networks that won the election, but the very careful micro-targeting of messages tailored to each reader.”

Retailers large and small are becoming progressively more data-sophisticated as they realize technological and business considerations for big data are not only essential but achievable. Focused on making the analysis of data quick, easy, affordable, and therefore accessible to companies, the big data industry is booming. A Wikibon.org study estimates that the big data industry will reach \$50 billion by 2017⁽⁶⁾, and the McKinsey Global Institute, the business and economics research arm of McKinsey, estimates that by 2018 in the US alone, there will be a shortage of 1.5 million big data professionals.⁽⁷⁾ Fueling this growth is the demonstrated impact big data has on an organization's profitability and therefore a company's willingness to invest. According to "Analytics: The Widening Divide," report by MIT Sloan Management Review and IBM Institute of Business Value, organizations that utilize data analytics are 2.2x more likely to outperform their industry peers.⁽⁸⁾ Additionally, those organizations that are proficient in the analytics of big data experience 1.6x more revenue growth, 2.0x more profit growth, and 2.5x more stock price appreciation than their peers.⁽⁹⁾

Big data companies, in turn have evolved in their approach to data. Many recognize that for business users to gain value from and obtain insights from data, they must be provided a tool that connects them to and makes sense of the plethora of data they have available. User friendly interfaces continue to be developed to amalgamate vast amounts of data that exist in multiple formats and from a multitude of sources. Whether owned in house, or contracted software as a service, today's cutting edge applications don't rely on static charts and graphs to present totalized data. Rather business users have access to associative data across business channels and visualization tools that allow users to manipulate their data in real time. Today, users across segments of an organization have available to them user-friendly dashboards to access what appears to them as a single, gigantic data bank which contains an assemblage of data, and they can manipulate, drill down and query the data to obtain unprecedented business intelligence specific to each business function.

While access to the droves of data may be getting easier, emphasis must be placed on the variety of data. To date, data savvy retailers are aggregating data from such sources as online browsing and shopping patterns, social media sources, industry forecasts, and existing customer records. Companies may own their enterprise data, but at the same time a data marketplace is evolving. Facebook, for example, is heavily invested in this marketplace as they extrapolate data from users' "likes" and report findings to marketers.⁽¹⁰⁾ In 2012, they purchased data on 70 million households from Datalogix, which is a company that sifts and extracts loyalty program data from 1000+ retailers.⁽¹¹⁾ And with a couple of key data pieces matched, the company can use technology to determine if a person with a particular name is the same person in the company's loyalty or enterprise database and can therefore identify them on the social site, extracting significant amounts of profile and transactional data that is valuable for marketing purposes

While variety, volume, and velocity characterize big data, even modest gains in the ability to use big data can have a big impact. In fact, a 10% gain in the use of big data by a median Fortune 1000 company is estimated to yield over \$2 billion in return!(12) Retailing, more than any other sector, is uniquely poised to capture the value offered by big data.

Why retail is poised to do well

As pointed out by Matt Asay in his June 6, 2013 online article "Why Retailers Have It Easier When It Comes To Big Data," retailers have an advantage in obtaining quality data, as customers willingly share information about themselves that would come at an expensive premium for research companies for other industries.⁽¹³⁾ Retailers have an array of tools to gather this data - loyalty and reward programs, warranty programs, purchase history, website activity, surveys and polls, email marketing --all means of collecting valuable data for the retailer and providing insight as to how to market to customers. However, in exchange for this data, customers expect something in return – individualized offers and a more relevant shopping experience.

An argument can be made that while the gathering and analysis of data is light years ahead of where it was just a couple of years ago, we have yet to find a retail solution to provide the kind of personalized shopping experience that the online mega-marketers have mastered.

E-commerce giants such as Ebay and Amazon have pioneered successful use-models of big data analysis and have demonstrated the value it provides to increase sales. EBay, for example, tracks and analyzes information about every search, bid, purchase, and navigation. They learned how to turn clicks into profit by analyzing customer behavior. Its search engine is optimized based on the patterns identified to increase the chance of a sale.⁽¹⁴⁾ Amazon maintains data about the purchasing behavior of its online customers and uses the customer clickstream data and historical purchases to provide customized recommendations based on browsing and purchase history.⁽¹⁵⁾

These recommendations create a customized shopping experience. The key to their continued success, however, is that they are able to parse through data at warp speed, make predictions based on the behavioral data they have amassed and deliver relevant recommendations and targeted messages to influence the outcome of each shopper's experience at the most critical persuasion opportunity - the point of purchase. Amazon learns faster by advanced experimental design as well; the company runs an estimated 5000 experiments on any given day, from which they are able to put better predictive models into production, automating the customized shopper experience.

Clearly these companies are quite adept at turning data into profit. Wouldn't it reason that traditional retailers can benefit by emulating the proven success data-to-profit model as closely as possible? If one answers yes to that question, it becomes immediately clear the missing puzzle piece is access to customer-specific data at the point of purchase.

The Mobile Marketing Association positions that "Nothing gets marketers closer to their consumers than mobile." So, is mobile the answer? Yes, but not in the way mobile marketing is defined today.

Marketing efforts to mobile are increasingly popular, commanding more and more of companies' marketing spend. According to Gartner, global mobile advertising is expected to grow 400% between 2011 and 2016, reaching \$11.4 billion in 2013 (\$3.8 billion in North America) and \$24.5 billion in 2016 (\$8.8 billion in North America).⁽¹⁶⁾

Approximately 50% of all iOS and Android traffic data is available to mobile ad networks for geo-location targeting purposes because either an app user chooses to share their GPS coordinates or longitudinal and latitudinal coordinates are returned from a wifi connection.⁽¹⁷⁾ While location is an essential element to mobile, it is important to consider most location-based ad impressions sold today are not true GPS coordinates, but workarounds attempting to approximate location.⁽¹⁸⁾ In fact, in the mobile advertising space, only 5 to 10% of all mobile ad inventory has true GPS-generated latitude-longitude data.⁽¹⁹⁾

Technology, such as the iSIGN Smart Antenna, is to brick-and-mortar retailers what cookie tracking is to Amazon, and it has the potential to revolutionize the way retailers advertise, merchandise their products and engage the consumer at the point of purchase.

While an important piece of the marketing ecosystem, mobile marketing today is effectively limited to such uses as store locator, app download, or as a mobile web site driver, and is more akin to the online Google model of advertising and search engine optimization - it helps get the customer in the door. The piece of the puzzle we are trying to replicate, rather, is that which Amazon and eBay do so well - to recognize the individual shopper once they are at the point of purchase and present a unique shopping experience based on data customized to each individual, and to effectively influence the outcome of each shopping experience.

Is it even possible for traditional retailers to replicate such a personalized experience such as this? There is a mobile technology currently making inroads to the market that may help retailers do just that. The Smart Antenna, a product by a company called iSIGN Media Corp. is an example of that technology. This particular device uses Bluetooth®, mobile wifi and location-aware technologies to deliver permission-based messaging to the mobile devices of customers in-store, providing at the same time, a powerful, real-time data exchange.⁽²⁰⁾ Using unique technical identifiers specific to individual mobile devices, this technology is to brick and mortar retailers what cookie tracking is to Amazon, and it has the potential to revolutionize the way retailers advertise, merchandise their products and engage the consumer at the point of purchase.

Such technology offers astounding promise both in the value obtained from the tremendous amount of valuable data that is generated as well as the opportunity to enhance and personalize individual shoppers' experiences. Retailers who employ such technology have the ability to turn their customers into heat maps and close the gap between their online counterparts when it comes to tracking behaviors such as where customers head as they first enter the store, dwell times for particular products, and who browses vs. buys.

In-store polls, surveys, loyalty programs, and POS integration are additional ways this technology generates high quality data for the retailer, who can then glean insights to mass customer as well as individual customer behavior previously not available. This data is subsequently owned by the retailer, which, in and of itself is a colossal value. Data generated from in-store behaviors can be utilized on its own or combined with data obtained from other points along the purchase journey. It allows business intelligence to be based upon real-time data, and provides for immediate, targeted actions. This technology opens the door to dynamic pricing and data analysis on-the-fly. And, unlike other mobile applications, it has the potential to close the loop of data touch points to the consumer.

For the consumer, technology such as Smart Antenna has great potential to personalize and enhance the shopping experience. Just as most people are willing to give up a bit of privacy to enjoy a better search experience with Google, people will sacrifice a bit of privacy to a retailer if they perceive value. Most smart phone users are interested in interacting with loyalty programs through their mobile device;⁽²¹⁾ coupons, promotions, and savings are one of the most appealing aspects of location-based advertising, and response rates to promotions can increase up to 65% when delivered within close proximity to the transaction location.⁽²²⁾

Consumers are ready to participate with proximity marketing when they trust the retailer and value the experience. With the technology ready and available, it's up to the retailer to take the next step.

Conclusion: **Actionable intelligence is transforming the retail shopping experience**

Until now, point of sale advertising has been limited to a few feet or line of sight to a static or digital display. But with the emerging use of new technologies, marketers can effectively merchandise their products in a range the size of a football field with powerful digital messages, coupons, and loyalty programs. Imagine if you will, a customer who has previously opted into a loyalty program enters a retail location and is greeted with a ping on her mobile device alerting her to the special offers that have been customized for her today. Some of those offers are based on historical purchases, for example the grocer knows that she likes to buy rib eye steaks, but only when they are on sale for \$8.99 per pound, or the retailer recognizes that it has been 4 weeks since she last bought her favorite laundry detergent and offers her a coupon to try a higher margin product. With location-aware technology in the store, the retailer knows that she likes to spend a little extra time browsing through the seasonal section, perhaps she would be interested to know there are new items recently stocked. Consider also the retailer has access to aggregated data that says that a certain product is trending hot nationally within her particular demographic - directions to where it is in the store can be presented. The options are endless. And the potential for retailers to engage customers as individuals in-store, persuade the purchase decision, and therefore influence each outcome and close the loop from impression to redemption is real. Retailers who harness this power will redefine what consumers expect. And those most proficient will lead in the next generation of retail winners.

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