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PRI and Northwestern University Partner to Create the Retail Analytics Council

The Retail Analytics Council is a global initiative between the Medill School, Integrated Marketing Communications department, Northwestern University, and the Platt Retail Institute.

Established in August 2014, the mission of the Council is the study of consumer behavior across shopping platforms to provide an understanding of how these impact retailers, particularly as new technologies are introduced. The RAC unites industry, faculty, students, and its Advisory Board members for the study and exchange of ideas.

The Retail Analytics Council's research focus is in the following areas:

- Omni-channel marketing (focusing on the integration of data and analytics across multiple customer purchase/acquisition channels).
- In-store analytics; e-commerce analytics; digital media analytics.
- Customer-driven marketing (the use of customer data to segment, target, and personalize offerings).
- Marketing mix modeling.
- Predictive analytics (including developing methods to leverage existing information systems with new data approaches).
- Determining which are the most effective marketing investments and which are less effective, to enable retailers to optimize their spending levels.

Announcing the First Retail Analytics Council Executive Development Program

Cutting-edge technologies. Innovative management approaches. Domestic and international case studies. All rolled into one-and-a-half days at the Retail Analytics Council Executive Development Program. Learn about the newest research and retail analytics techniques from the professors and professionals who are thought leaders in the omni-channel environment.

Sessions are planned on current best practices, use of new research tools, how to develop a customer-driven marketing communications framework, how to bring digital metrics to retail environments, how to capture insights from historical data, and how to create an organizational structure to support an omni-channel marketing approach. Experienced professionals and academics will conduct all sessions.

Venue: Northwestern University in Evanston, Illinois

Dates: June 10-11, 2015

Do not miss this great opportunity to interact with retailers, researchers, and thought leaders from around the world. For more information, fees, and registration, please visit the Retail Analytics Council website.

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"Retail Analytics That Drive Store Performance"

Date: March 10, 2015

Time: 9 a.m. - 5 p.m.

Location: Las Vegas Convention Center

In conjunction with Digital Signage Expo

#PRIRetailForum

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Forum Presenters Include:

- Dr. Martin Block, Executive Director, Retail Analytics Council, Northwestern University.
- Ryan Craver, former SVP, Strategy, Hudson's Bay Companies | Lord & Taylor.
- Julia Fitzgerald, CMO, Sylvan Learning.
- Jagdish Girimaji, Director, Product Management, Mobility Services, Cisco.
- Dan Gutwein, Director of Retail Analytics, Intel.
- Slava Sambu, Director, Web Analytics, Office Depot.
- Tom Schuetz, Senior VP/CTO – Americas/Asia, Luxottica Group.
- Matt Shafer, VP, Strategic Alliances, Cedar Fair Entertainment Company.
- Bill Shaw, Director, Concept Development and Implementation, AT&T Retail Stores.
- Ken Silay, Director, Technology Research and Innovation, Chico's FAS, Inc.

Click here for the full Forum agenda

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Holiday 2014, Commentary on Weak December and January Retail Sales, and 2015 Outlook

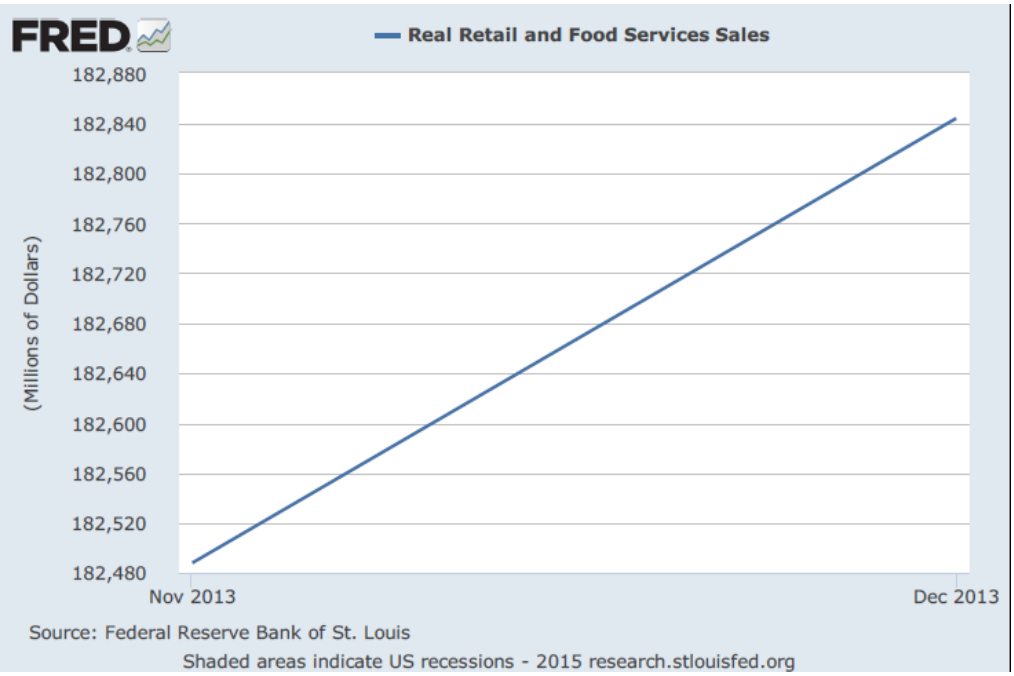
Overall, 2014 holiday retail sales were solid. Weak December and January retail sales, along with good but not great growth in fourth quarter GDP are, on the surface, concerning. Yet, the consumer spending component of GDP continues to hold up well. Much of this divergence between retail sales, on the one hand, and consumer spending, on the other, is due to slowing auto sales and reduced gas prices, rather than a slowing of the economy as evidenced by strength in the labor market. As discussed below, we look for 2015 GDP growth in the range of 2.5 to 2.8 percent. In addition, we look for 2015 retail sales, less auto, gas, and building supplies, to increase by 3.9 percent.

Holiday 2014

The results for the 2014 holiday selling season were good. Sales increased by 4 percent, according to both the National Retail Federation and the U.S. Department of Commerce.[1] The National Retail Federation had projected that sales for November and December (excluding autos, gas, and restaurant sales) would increase by 4.1 percent. PRI took a more conservative approach, and looked for an increase in holiday spending of 3.8 percent.

Looking at retail sales activity during the two holiday months, overall retail sales increased by 0.4 percent during November. Sales excluding autos, gas, building supplies, and food service rose 0.6 percent. This was offset by poor December results, with overall retail sales declining by 0.9 percent. Sales excluding autos, gas, building supplies, and food service declined 0.3 percent. (See Charts 1A and 1B below, which compare Real Retail and Food Services Sales for November and December 2013 to November and December 2014.)

Chart 1A. Real Retail and Food Service $ Sales, November and December 2013.



Source: Federal Reserve Bank of St. Louis

[1] Overall retail sales increased around 4 percent; 3 percent excluding auto sales.

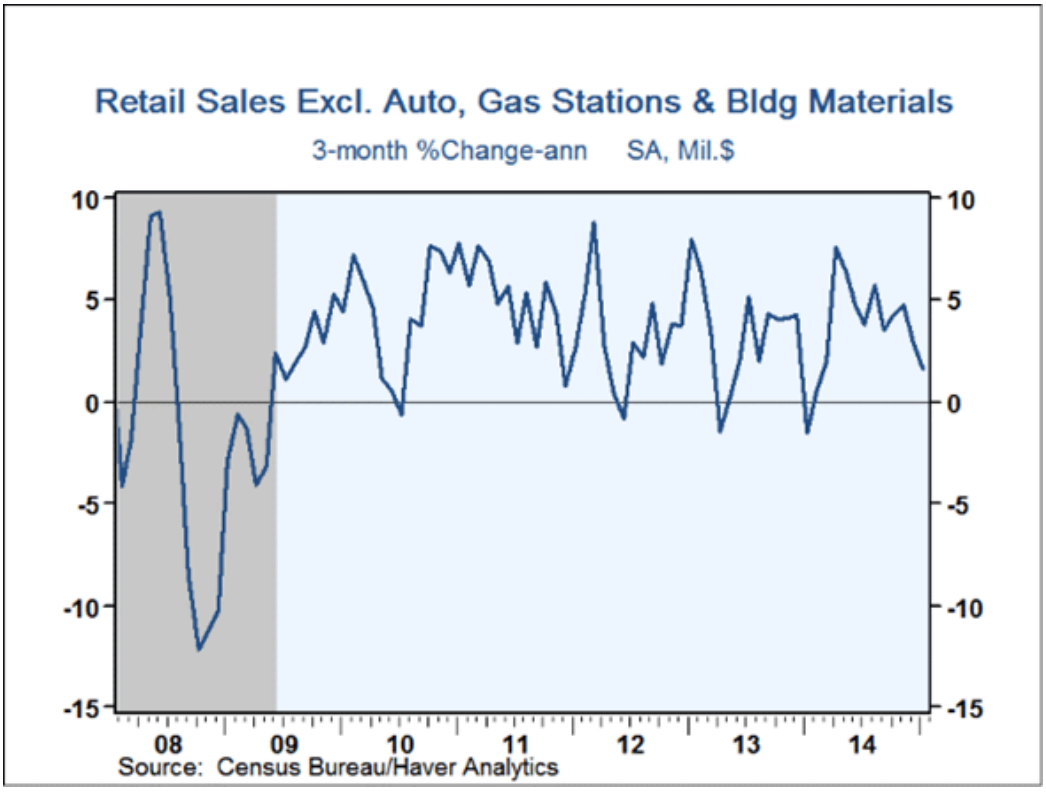
Economic Outlook (cont'd.)

Chart 1B. Real Retail and Food Service $ Sales, November and December 2014.

Source: Federal Reserve Bank of St. Louis

For all of 2014, retail sales increased by 4.0 percent, trailing the 4.2 percent gain in 2013, and the 5.1 percent increase in 2012 (see Chart 2).

Chart 2. Retail Sales, Excluding Auto, Gas Stations, and Building Materials.



Source: Haver Analytics

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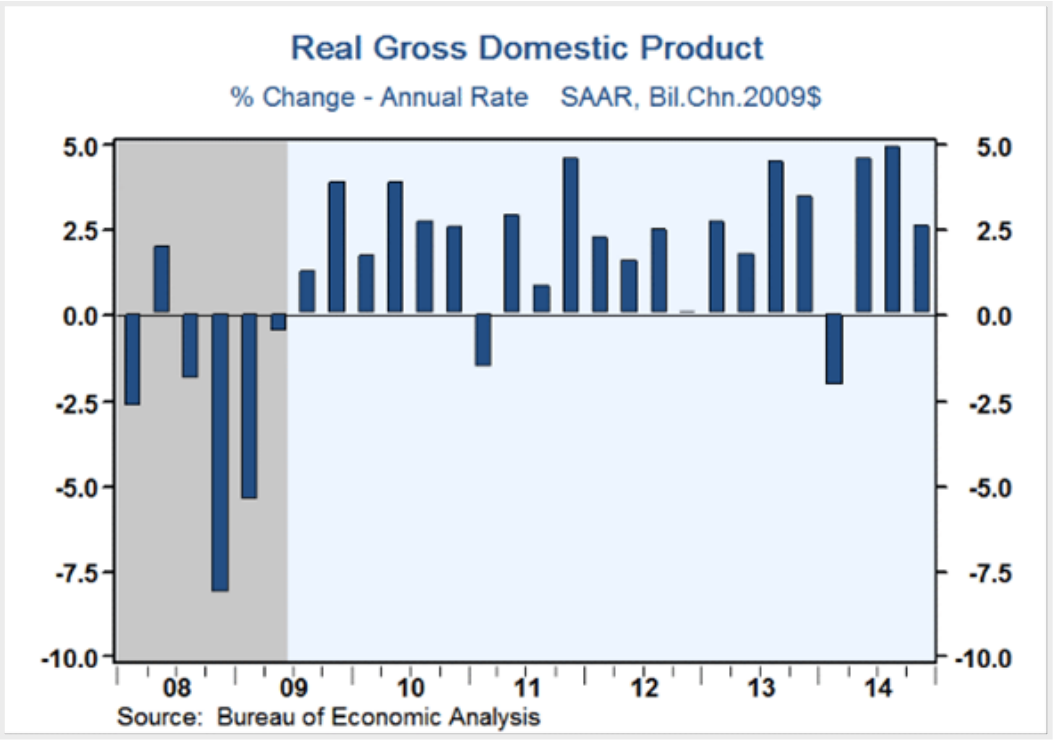
Economic Outlook (cont'd.)

2015 Outlook

Real GDP growth in the fourth quarter of 2014 moderated to 2.6 percent, versus a very strong 5.0 percent in the third quarter. In general, fourth quarter GDP was influenced by a decrease in exports, slowing business investment, and reduced government spending. Overall, the economy grew by 2.4 percent during 2014, versus 2.2 percent in 2013, and 2.3 percent in 2012 (see Chart 3).

Clearly the economy is continuing to improve. Positive trends in the job market, income growth, solid consumer confidence and spending, plus increasing household net worth and falling energy prices are all positive factors. Estimates for growth in the U.S. economy in 2015 range from 2.6 to 3.2 percent. We are trending in a more conservative range of 2.5 to 2.8 percent.

Chart 3. Real Gross Domestic Product.

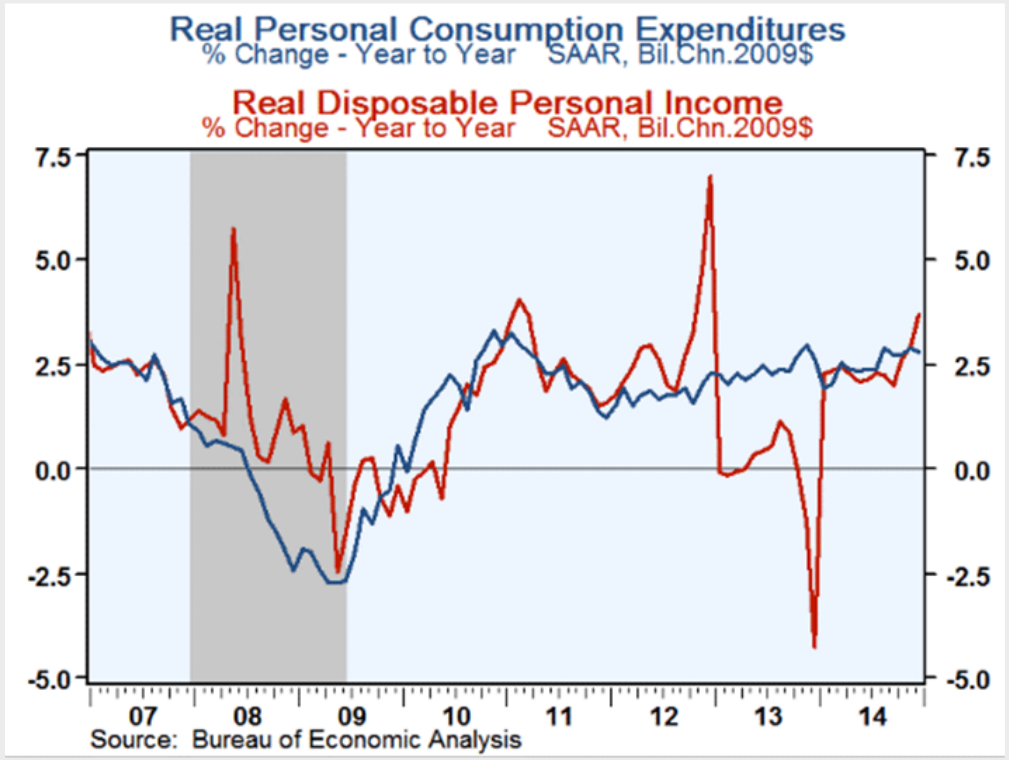


Source: Haver Analytics

Personal spending increased in the fourth quarter by a solid 4.3 percent, versus 3.2 percent in the third quarter. For all of 2014, personal spending grew by 2.5 percent, versus 2.4 percent in 2013, and 1.8 percent in 2012 (see Chart 4).

Economic Outlook (cont'd.)

Chart 4. Real Personal Consumption Expenditures.



Source: Haver Analytics

As noted, overall retail sales increased by 4.0 percent in 2014, trailing the 4.2 percent gain in 2013 and the 5.1 percent increase in 2012. According to GE Capital, retail sales grew, on average, by 5.5 percent during 2010-2012 and 5.8 percent during 2002-2006. For 2015, the National Retail Federation expects retail sales, excluding automobiles, gas stations, and restaurants, to grow by 4.1 percent versus 3.5 percent in 2014. The U.S. Department of Commerce, on the other hand, reported that non-auto, less gasoline and building supplies, rose by 3.7 percent in 2014 versus 3.1 percent in 2013. Following the U.S. Department of Commerce's reporting method, we look for 2015 retail sales to rise by 3.9 percent.

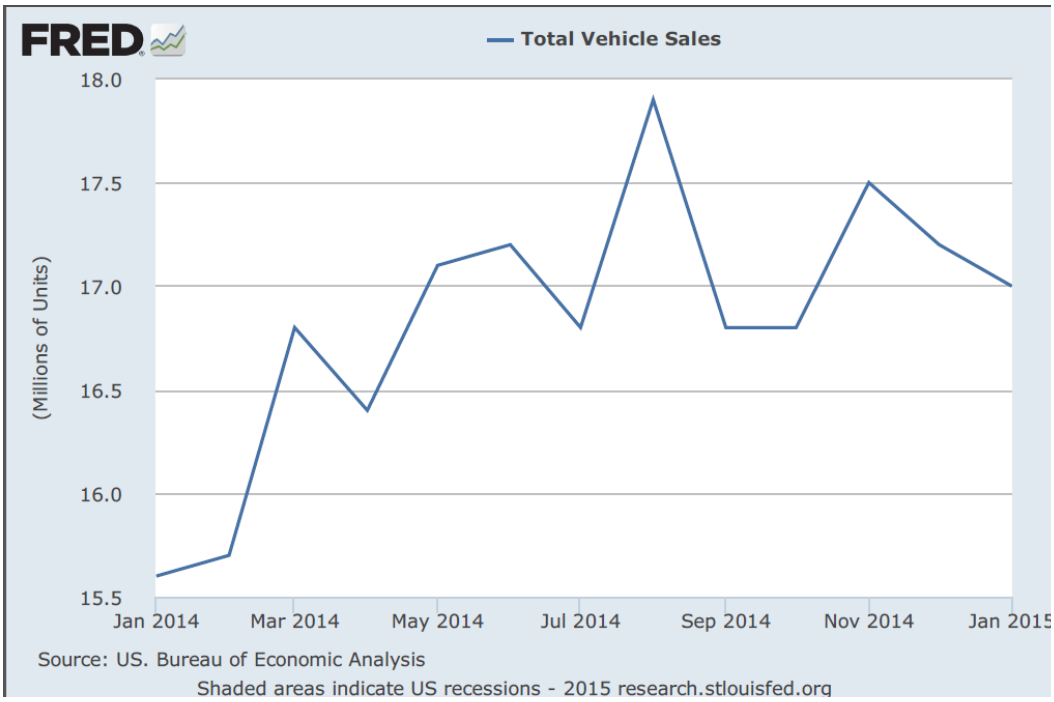
In regard to the December and January dip in retail sales, as contrasted to a solid increase in personal spending in the fourth quarter, this dichotomy raises two questions. The first is, what are the differences between retail sales and consumer spending? The second is, with consumer spending doing well, on the one hand, and retail sales falling by 0.9 percent in December and 0.8 percent in January, on the other hand, is it possible to hit that projected 3.9 percent retail sales growth target in 2015?

This can best be understood by considering the differences between reported retail sales and consumer spending. Retail sales do not include spending on services, such as health care, housing, transportation, and entertainment, among other things, which account for nearly two-thirds of total consumption expenditures.

This divergence between retail sales and consumer spending is due to slowing sales of autos and reduced gas prices. As Chart 5 illustrates, unit vehicle sales topped out at a 17.9 million unit run rate in August, falling to 17.2 million units in December and 17.0 million units in January 2015.

Economic Outlook (cont'd.)

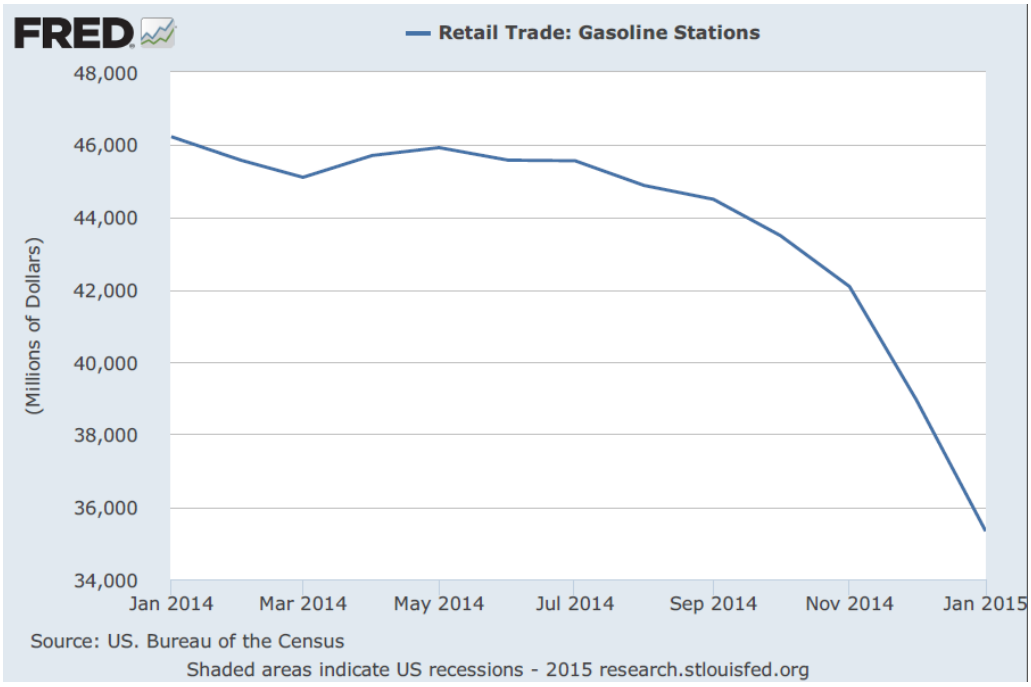
Chart 5. Total Vehicle Sales.



Source: Federal Reserve Bank of St. Louis

As Chart 6 illustrates, sales of gasoline sold at retail had their steepest decline in December and January.

Chart 6. Retail Trade: Gasoline Stations.



Source: Federal Reserve Bank of St. Louis

In summary, we believe that the recent decline in retail sales is attributable to falling unit auto sales and reduced gas prices, and not due to weakness in the economy. Overall, job growth is strong enough to support increases in wages and salaries, and thus fuel consumer spending. Lower gasoline prices will also provide some near-term support.

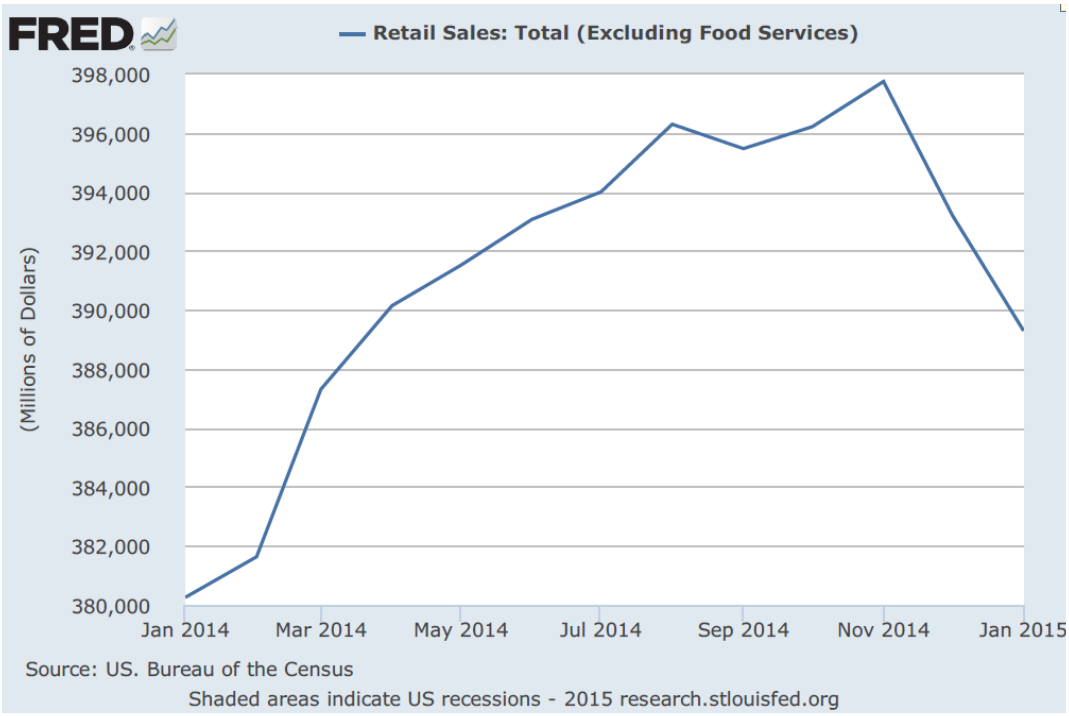
Retail Sector Performance Charts

The following table and charts provide several perspectives on retail sales performance.

Retail Spending (%)	Jan	Dec	Nov	Jan Y/Y	2014	2013	2012
Total Retail Sales & Food Services	-0.8	-0.9	0.4	3.3	4.0	4.2	5.1
Excluding Autos	-0.9	-0.9	0.2	1.7	3.0	3.0	4.0
Non-Auto Less Gasoline & Building Supplies	0.1	-0.3	0.6	4.3	3.3	3.3	3.6
Retail Sales	-1.0	-1.1	0.4	2.4	3.8	4.3	5.0

Source: Haver Analytics

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



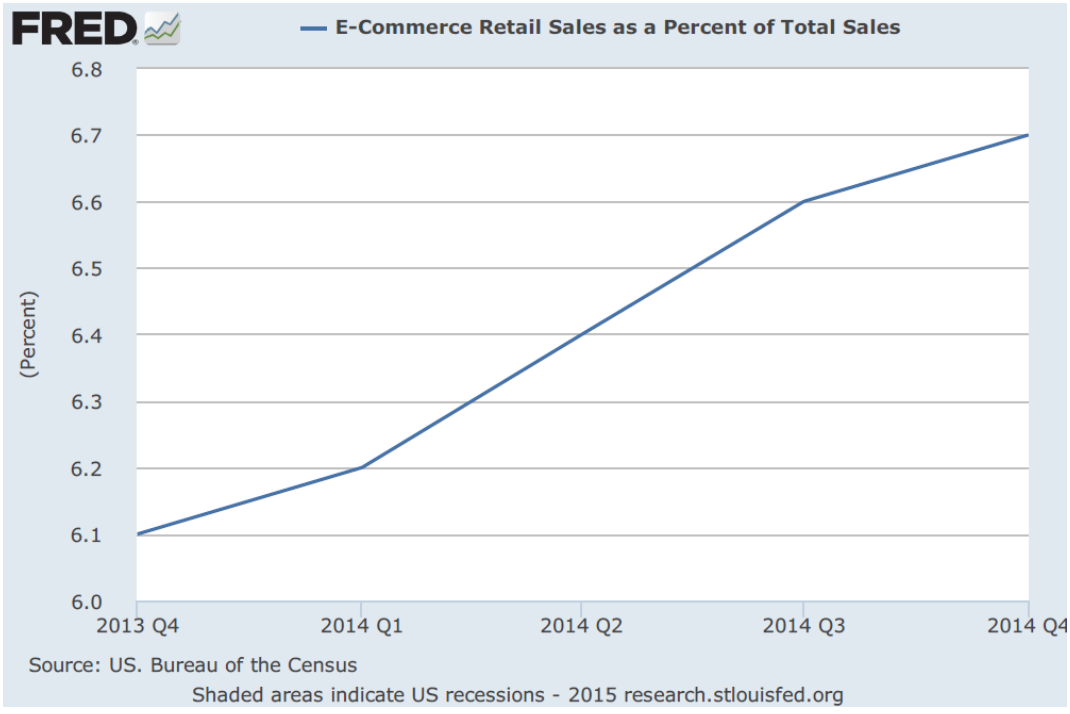
Source: Federal Reserve Bank of St. Louis

Retail Sector Performance (cont'd.)

Chart 2. E-Commerce Retail Sales.

Source: Federal Reserve Bank of St. Louis

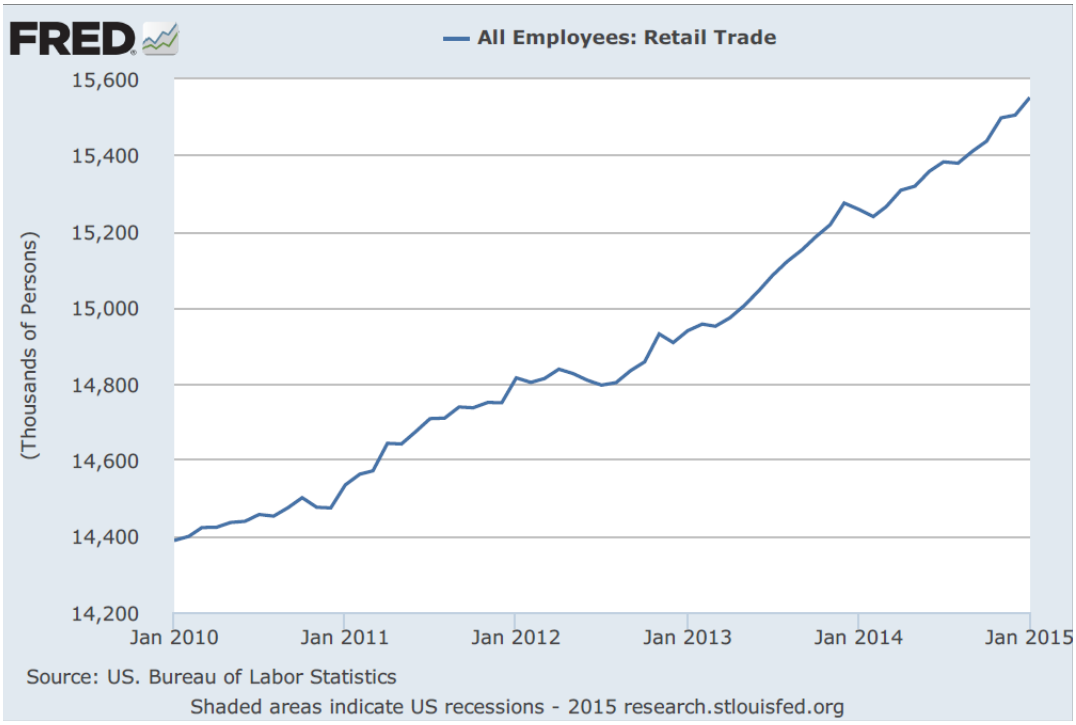
Chart 3. E-Commerce Retail Sales as a Percent of Total Sales.



Source: Federal Reserve Bank of St. Louis

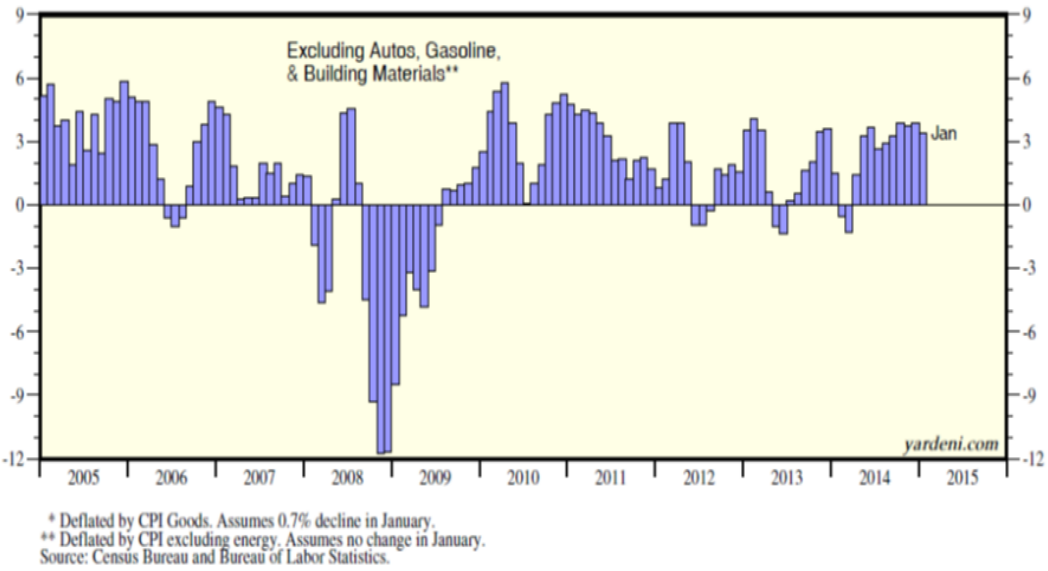
Retail Sector Performance (cont'd.)

Chart 4. All Employees: Retail Trade.



Source: Federal Reserve Bank of St. Louis

Chart 5. Retail Sales Excluding Autos, Gasoline, and Building Materials.



Source: Yardeni Research

Customer-Centric Marketing Strategy for Growth and the Chobani Story

By Denise Dahlhoff, PhD, Research Director, Baker Retailing Center, The Wharton School, University of Pennsylvania

Customer Centricity means prioritizing the right customers

The Knowledge@Wharton Customer Centricity Summit held at the Nasdaq in New York addressed a timely topic that is relevant for any industry: How do companies position themselves for sustainable long-term growth, specifically by being customer centric? Attended by executives from a range of companies and industries, the conference was chaired by Peter Fader, a Wharton marketing professor and co-director of the Wharton Customer Analytics Initiative, and hosted by Mukul Pandya, Executive Director and Editor-in-Chief of Knowledge@Wharton, Wharton's online business journal.

Peter Fader's customer centricity concept is novel and unique. It is a departure from a mere customer service orientation and companies' traditional marketing strategy. The idea is to identify one's most valuable customers and focus the business around their needs. This focus on select customers, the ones that will grow the business in the long run, puts a customer's lifetime value at the center. Customer analytics that leverage data at the individual customer level are key to this concept.

Conference host Mukul Pandya, Executive Director and Editor-in-Chief of Knowledge@Wharton, and conference chair Peter Fader, a Wharton marketing professor and co-director of the Wharton Customer Analytics Initiative, ringing the Nasdaq closing bell surrounded by conference participants.

As Neil Hoyne, Head of Customer Analytics at Google, explained, there is no one-size-fits-all approach to measuring customer lifetime value (CLV). Each business has its idiosyncrasies and requires a customized solution. Online tools that promise an easy way to compute CLVs are tempting to use since they put a dollar number on CLV but may not be valid tools. Google is an advocate for considering CLV and helps clients to better understand and employ the concept.

Peter Fader explained that to truly implement and practice this new marketing approach requires senior-level executives to champion and lead the change within their companies. The customer centricity field is in its infancy, and best practices are just evolving. If a company commits to following this new strategic concept, it could start small and run experiments before launching wider-ranging customer centricity initiatives.

How companies use analytics and technology

The hand-picked list of presenters were from a range of companies including Merck, Cigna, Hilton, QVC, Bonobos, CVS, eBay Enterprise, Wells Fargo, American Express, Caesars Entertainment, and Chobani. They leverage customer data and technology to collect data and deliver customized messages and services.

For example, when Bonobos segmented its customers into high and low spenders and did some more analyses, it found that 35 percent of its customers generate 75 percent of the business, as Craig Elbert, Vice President of Marketing at Bonobos, explained. High-value customers were found to buy across product categories. CVS Health uses digital elements and data to enhance the customer experience, according to Brian Tilzer, Chief Digital Officer at CVS Health. For example, it reminds patients by text, call, or app to refill prescriptions. Having a patient's drug records also lets the system check drug interactions and suggest less expensive alternatives for prescribed drugs. The CVS app personalizes offers and stores coupons for members of the loyalty program.

A great example of the conference's growth theme is Chobani, the leading Greek yogurt brand in the U.S. The following section summarizes the Chobani growth story, as told by Peter McGuinness, Chobani's Chief Marketing and Brand Officer.

Perfecting Greek yogurt and democratizing healthy food

Chobani was inspired by a market gap and the determined vision of Hamdi Ulukaya, the founder and CEO of Chobani. Coming from Turkey, he found the yogurts available in the U.S. just not as good as back home. So he set out to create better food for more people, essentially democratizing healthy food, starting with the best yogurt. By best he meant natural, nutritious, simple, and good-tasting – like the food he was used to in Turkey. He also wanted it to be affordable and thus accessible to a broad consumer base.

Peter McGuinness is Chief Marketing and Brand Officer, Chobani.

Despite others' skepticism of his unwavering plan – the category had less than 1 percent market share back then – Ulukaya went ahead with his idea to bring "real, good, simple yogurt" to America, even if naysayers considered Greek yogurt too tart for Americans. His 2005 purchase of a dilapidated factory that used to make cream cheese was the start of Chobani. The endeavor turned out to not be that simple and fast to implement. It took Ulukaya one-and-a-half years to come up with the perfect recipe.

While the original focus was on creating a single outstanding product, i.e., perfecting the recipe, manufacturing, etc. for Greek yogurt, the focus now is on marketing the brand and positioning it more broadly as "Mediterranean, simple, and healthy lifestyle."

Stirring up the market

Less than 10 years later, Chobani is by far the dominant Greek yogurt brand in the U.S., holding almost half of the total market share. It counts celebrities such as U.S. Olympic athletes among its consumers – a perfect fit with the "live and active" characteristics of yogurt cultures – who enjoy sponsored cups of Chobani Greek yogurt at Olympic facilities.

Chobani's production facilities in New York state helped make the state the nation's biggest yogurt producer, which inspired Governor Andrew Cuomo's bill this past fall to make yogurt New York's official state snack, "amid the booming popularity of strained Greek-style yogurt," as his office said. A big customer of New

York dairies, Chobani has been a great partner for the local dairy industry and even bought the state out of milk at one point.

Chobani's meteoric rise in the category, surpassing the original leader Fage and outrunning Dannon, didn't happen with competitors and vendors just looking on. Peter McGuinness talked about "yogurt wars" and said that "everything got Greek-washed," increasing the number of Greek yogurt SKUs significantly and crowding store shelves. Walmart declared 2013 "the year of yogurt."

On trend

Chobani's tagline is "How Matters." It reflects the overarching principle that guides every aspect of the Chobani business, including the sourcing of ingredients with local farmers, treating employees fairly, lobbying for non-GMO grains for cows, and treating cows humanely.

Chobani's mission fits the cultural spirit of the times well, including the Millennial generation mindset, which contributes to Chobani's exceptional success. People care more about eating healthily and companies' social causes, and they develop loyalty for brands they like even if they don't have a century-long history.

Not just for breakfast

While Chobani enjoys a high brand awareness and household penetration, the market has reached a point of stagnation. The yogurt category hasn't grown, and migration within the yogurt category to Greek yogurt has slowed. Now the challenge is to grow by driving new people to the category, get yogurt consumers to switch to Greek yogurt (household penetration of Greek yogurt is 37 percent), and increase current consumers' consumption.

Chobani has been working on a lot of initiatives to extend the brand and its "Mediterranean, simple, healthy" positioning to new products (light versions, mix-in oats, seasonal flavors, and cups with flip corners for toppings), consumer segments (babies, toddlers, dieters, and Hispanics), channels (online retail partners), consumption occasions (Greek yogurt as afternoon snack, evening indulgence, and cooking ingredient), and new geographies (South, Central, and West).

Chobani even opened a café in Soho, which is not only a retail location but also serves as a showroom of the Chobani lifestyle and a lab to innovate and test new products. Featuring a yogurt bar with sweet and savory options and a menu of Mediterranean-inspired snacks like sandwiches and soups, it gives the brand a social place in the life of a sophisticated urban clientele. Chobani is now piloting the bars in college cafeterias.

The second Knowledge@Wharton Customer Centricity Summit will take place in October 2015 in San Francisco.

Denise Dahlhoff, PhD, is the Research Director of the Baker Retailing Center, a research center in the retail, e-commerce, and fashion space at the Wharton School of the University of Pennsylvania.

Driving Store Sales by Leveraging Location-Based Analytics

Excerpts from an RIS News/PRI webinar

Advances in in-store digital technology are enabling retailers to inexpensively accumulate a treasure trove of customer data. Insights extracted from this data can be used to increase sales, enhance the shopping experience, reduce operating costs, and become the foundation for next-generation proximity marketing campaigns. Implementing location-based technologies, aggregating and analyzing the data, as well as practical tips to ensure success when using these insights, were the topics discussed during a webinar hosted by RIS News. This article provides coverage of the webinar.

Joe Skorupa, RIS News Editorial Director, moderated the webinar. Also presenting were Steven Keith Platt, Platt Retail Institute Director and Research Fellow, and Carl Ceresoli, Senior Director, Infrastructure Architecture and Strategy, Microsoft Retail Stores. The comments, questions, and answers were edited to improve clarity.

Joe Skorupa: In this webinar, you will hear about one of the biggest issues in retailing today, which is saving stores from a multi-year decline in foot traffic and struggling comparable-store sales. The solution to these serious challenges in retail is gathering a treasure trove of data about in-store shoppers and detailed metrics of store performance by using location-based technologies to replace old systems and methods that financial performance shows no longer work.

"The solution to these serious challenges in retail is … using location-based technologies to replace old systems and methods that financial performance shows no longer work."

In this session, you will hear about how retailers can extract insights from location-based analytics and technologies to increase comparable-store sales, use in-store digital technologies to enhance the shopping experience and more deeply engage shoppers, tap into shopper behavior patterns to reboot store layouts, flow patterns, and promotion strategies to promote location-based tracking. And finally we will talk about practical tips for next-generation proximity marketing, one of the holy grails of retailing.

Steven Keith Platt joins us from the Platt Retail Institute – PRI – a consulting and research firm that focuses on the use of technology to impact the customer experience in an omni-channel environment.

Carl Ceresoli, who is responsible for new retail store openings for Microsoft, also joins us for this session. For the past 20 years, Carl has been involved in pushing the technology envelope and redefining what's possible. Today, Carl's focus is on retail technology and team building within the Microsoft retail technology group. Carl, I'm really looking forward to learning about the in-store, location-based technologies you are working with in your state-of-the-art stores.

Before Steven gets started, I'm going to bring something up as a thought starter. This came from a quote by Thaddeus Arroyo, president of technology development at AT&T. He was quoted in Computer World as saying this, which is very applicable to what we are going to be talking about today. He said, "I frame up our perspective by 2020 as looking at how we evolve beyond ecommerce and self-service, to create new business designs in ways that blur the digital and physical worlds. I support the technology that supports the physical side – the call centers, retail stores, and if you're engaging with us through a digital

channel. So what we're striving for by 2020 is to capture, integrate, and interpret data in a way that directly impacts the customer experience. Customers shouldn't have to tell us what we already know. We want to extend this intelligence to the physical and digital boundaries."

With that I'm going to turn it over to Steven to provide us with an overview of the evolving digital landscape in stores with a focus on location-based technologies and analytics.

Steven Keith Platt: The opportunity to achieve competitive advantage from location-based analytical systems is, in my opinion, enormous. These measures enable retailers to gain a unique perspective on what is happening in their stores that transactional data simply cannot provide.

"... location-based analytical systems ... enable retailers to gain a unique perspective on what is happening in their stores that transactional data simply cannot provide."

With the analytical tools that are now available to them, retailers can gain real-time information that enables rapid response. For example, a retailer can isolate a store's performance based on changes in traffic patterns, and develop closer relationships based on a deep understanding of consumer behavior such as loyalty implications based on repeat visits. Retailers also can deliver targeted advertising, promotions, and product offers to customers.

Many of our clients are asking about store location-based analytics, and in fact, it's probably the hottest topic there is today in retail. But beyond the data itself, is the associated process of adopting an analytics-focused organization. That is, how does an organization prepare itself to leverage these analytical insights?

Most retailers find it difficult to leverage all of the data, technology, and analytics that are available to them. The effective use of analytics in retail depends not only upon the availability of data and analytical tools, but also upon the availability of retail managers and employees to use them effectively.

Retail Analytics Adoption Requirements

There are seven organizational anchors that are required to become an analytically focused retailer.

First of course, you need **data**. Most retailers have vast amounts of data from point-of-sale, website, credit card, loyalty programs, enterprise resource planning, and other business applications. Yet, you can't perform analytics without clean, high-quality, integrated, accessible data.

The next point is **accessibility**, and by that we mean we have to be able to get at it to analyze it. The best method for that historically has been retailers adopting single-purpose data marts. However as integration becomes more critical for performing more advanced analytics, more sophisticated retailers are building enterprise data warehouses for analytical applications to draw the data from.

Management involvement in the process is also critical. Managers with that particular orientation and the desire to explore, develop, and implement analytical processes over time will allow analytics to become an ongoing process.

A related question becomes retail management's desire to build up its own analytical capabilities rather than relying on outsiders such as manufacturers. Of course, **scale** plays a big part in this, making it important to have the ability to invest in the required systems and talent to make all of this work.

Another consideration is the **ecosystem**. That is, the collaboration with partners – which are data and analytics service providers of various software firms. Evaluations need to be made to determine what should be built in-house or outsourced.

Centralization refers to having a centralized function that then makes this information readily available throughout the organization. Historically, these functions have been siloed within functional areas, such as merchandising. The point is that you have to be able to distribute and make this information accessible. As an example, digital technology enables instant promotions that require information from marketing, supply chain, price optimization, etc.

And finally it needs to be **distributed,** and decisions have to be made on who gets the information and how they receive it. Location-based analytics, for example, that are accessible by store managers on their mobile POS tablets via a dashboard will enable them to track traffic and conversion rates to enable rapid responses at the store level.

Skorupa: You know, one of the assumptions in this webinar is that there is a need for in-store analytics. We are beginning our webinar with that as an assumption. But what is driving the need for in-store analytics and location-based data? Carl, please tell us why this is an important area for retailers today.

Carl Ceresoli: I've been in the retail space for 10 years and the technology space for 20. I came to Microsoft from AT&T and participated in the build-out of the flagship location in Chicago for AT&T as well.

It is an interesting question. On the surface, it seems rather obvious. The need for analytics is driven by a couple of key areas of the business. The obvious ones are marketing, sales operations, and parts of the organization specifically related to those tasks. The really interesting component is that from an IT and infrastructure perspective, there is a significant need for this type of data.

When you look at the technology that goes into the retail environment today, wireless networks – I know that everyone is talking about beacons, and the advantages that they could potentially provide – but it's a substantial investment and the optimization of that type of infrastructure is dependent on this type of data. How do you turn this data into business intelligence?

Data allows you to make better, faster, more frequent and informed decisions. That's as opposed to decisions that used to take 30 days if you had to make an adjustment in digital signage or some part of the infrastructure. The concept here is to be able to have this data streaming in real time so that you can make real-time adjustments, whether it be in the digital infrastructure in the store, or even decisions on product placement in real time as your audience throughout the day shifts and changes. How do you know that, how can you see that, how can you interpret that? The obvious example would be traffic patterns. We have talked a bit about the sales floor and product placement effectiveness and dwell times, and that's the promise of location-based technology on the surface.

I have been asked, "From an infrastructure perspective, what's your interest in location-based analytics?"

In response, my interest, as an infrastructure and IT guy, is trying to figure out how to extract that data or that type of data from my existing infrastructure – the infrastructure I just made a significant investment in. How is it possible to get this type of data out of that existing infrastructure, whether it be location-based information or information on door swings, and things like that?

"… my interest … is trying to figure out how to extract that data or that type of data from my existing infrastructure …"

When you look at the investments retailers are making into that, it's substantial. Then to come right behind that with, "well, if you want to do location-based analytics, you have to deploy more infrastructure, you have to deploy infrastructure that requires batteries, it requires multiple locations throughout the sales floor." The immediate question we get from a retailer's perspective is, "What's my total cost of ownership on that technology? How do I care for and feed that technology over the course of its life? Well, it has to exist in my infrastructure out there in my environment. How do I service it when it goes out?" Those types of questions quickly lead to the cost around that.

Traditionally, there is an immense amount of data coming off your wireless network. Everyone, I think, now knows that and I've seen that topic explode over the past six months, with people asking, "How do I do Wi-Fi analytics?" Originally, IT folks used the data sets coming off of those networks to optimize the networks, to load-balance traffic, and to ensure connectivity on the sales floor. When you look more closely at what's available, you quickly realize that placing that information into some basic analytical models can provide a treasure trove of information. And that's the real opportunity initially.

I just got out of a presentation. We had an agency come in to talk to us about creative approaches and various technologies. Sitting across the table from me was our creative director. It was a great presentation, with all of these opportunities they presented. At the end of the presentation, our creative director said, "This is wonderful, but I've been hearing the same message for three years plus. 'You're going to be able to do this, you're going to be able to do that, you're going to be able to deliver this coupon, you're going to be able to deliver this experience and make it unique for the individual.'"

That really resonated with me, because the reality is that I've been in the IT business for quite some time, and it goes back even further where we had people coming into a retailer saying, "I want to do all these spectacular things with location-based technology," and the reality is that most of the technology had not matured to the point where it could reliably deliver that.

For me it's an exciting time. I think we're right at that tipping point where technology is actually capable, in real time, of producing that type of information and feeding it into the analytical engines to be able to deliver things like dwell times very effectively – dwell times and heat mapping. And we're actually seeing this now. We are now seeing this type of data pushed through the right analytical models capable of demonstrating very effective heat mapping, very effective sales floor analytics.

How do you involve the individual consumer? Is it an opt-in model? How far do you take the analytics, just as the raw data coming off of the infrastructure? Those are the balancing questions. From a consumer perspective, the consumer still wants to be in control, they still want to be the ones giving permission within a brick-and-mortar facility, to say "Yes, I will allow you to do this," or, "I will allow you to engage with me in this way." And that's actually the expectation that we're seeing.

The balance is that a lot of the broader data sets allow you to paint with very broad brushes, and obviously you don't need individual information to do things like heat mapping and dwell times. But then, how does the technology enable the other experiences, more on a one-on-one basis?

Traditionally, studies such as traffic analysis, dwell times, penetration, sales conversions, and sales productivity would be done in a sample by observational study. Some researchers would come in and over the course of the week, they would administer exit surveys or do observational studies or use cameras to understand how people move around on the sales floor. The downside to this is that

there may have been factors at play that were beyond the control at the particular location – bad weather, a news event, something else that is influencing people's behavior during that time. The other downside to this is once you have that data, you make a decision on it but then you have to do another study to figure out how effective the action was.

The obvious advantage of location-based technology services is that we're running 365 days a year, seven days a week, 24 hours a day, and are able to do dwell time and traffic analysis. The advantage is that you can make a change in your store or you can move a product from one location to another location and then you can immediately see the impact, and also see the impact over the course of a week or a month or however long you want to leave it in place before you make another decision.

For our stores, we have a very large video wall presence in most locations. The appealing part of that for us is attempting to leverage that wall and deliver messaging via that wall and immediately determine the effectiveness of that messaging. Did these things change? Did we notice an adjustment to traffic patterns? By placing this message when we had these individuals in the store or when the store reached a certain capacity, were we able to more effectively influence purchasing behavior? These are all the things that we can tell quickly by having this electronic measurement of location-based services available.

These are the obvious things you would expect out of this type of equipment – optimization of store fixtures, merchandise placement, and in-store marketing promotions. Again, these are the things, because you have that infrastructure running and you've made that investment in it, this data is all possible.

Beacon technology in general has an immense amount of promise – I think that it will ultimately get to the place where it is touted now to be. The challenge with beacons in general is installing and maintaining them in a retail environment, which we all know is a brutal environment. It is an environment of customers walking through, banging into things, moving things around, adjusting things, store cleaners, the environmental conditions, everything else that may keep the technology from operating effectively for an extended period of time without having anyone go touch it. And with so many of those in the store, your total cost of ownership for that particular type of infrastructure right now is somewhat prohibitive. And when you look at the initial installation of that type of technology into an existing retail environment, that's a significant effort.

I run the new store builds as a part of the Microsoft process, and changing something when you're in construction, it is not a big deal. Changing something when that store is already built and finished and you've gone through sign-off and marketing and you've got product placed in it, that is a big deal. The expense of infrastructure remodeling in a production retail environment is astronomical. And typically the hours to do that are between 11 p.m. and 6 a.m., so it's a significant challenge.

My interest in location-based technology is to understand how I can deliver the information with my existing infrastructure. How can I deliver that raw data into the analytical engine that Steven and team are working on? How do I provide them those feeds and have that be the core of that model? And how does that produce the necessary business intelligence to make the decisions that have to be made to run a retail store effectively?

In-Store/In-Location Dwell Time

Tracking the duration of customer store visits over time and looking at repeat visits over time are useful in understanding success in attracting and keeping customers engaged. We might want to look at dwell time around a particular

product by using geofencing. This type of wireless infrastructure allows us to understand, "I have a placement of a particular product on a fixture, drawing the boxes around that, geofencing that fixture to understand when somebody breaks that boundary, and how long he stays in that boundary." But this is very difficult to do.

In a lot of presentations, a vendor comes in and talks about this spectacular service. You can draw a boundary box around a fixture, but the variables that are not truly understood yet are things like what happens when a customer is looking at two different things. They might step in and out of that boundary over the course of a minute, 40 different times. What happens when the fixture that is next to that fixture – the clothes, or the product, or the technology – has an issue where people back up into it and they break the boundary of a different fixture?

Another area that I've tried to measure is what happens when the retail facility right next to me has an event and their event pulls in a particular demographic? Because my wireless network is visible in their facility, I have a thousand teenagers that are all jumping onto my network and all of a sudden, my store looks like it has a thousand teenagers in it and decisions are made based on that. Those are the real challenges around this technology that still have to be figured out.

Location-based technology certainly allows you to cleanse that type of data to ensure that when you make decisions based on it, they are based on true business intelligence about what is happening within your footprint, within the dwell times of that location, within that particular fixture area, and that is really the appeal of this. I have the ability to know things like where people are going within the store and what websites they are surfing while they are in the store.

Sales Conversion

We have looked at some of the information generated by location-based technology and bringing that in to do some other things, like sales conversions by merging the location-based information that's coming off of our networks and combining that with various internal systems. To talk about this is easy, to do it is intensely difficult and that was the comment made at the end of the agency presentation I referred to earlier.

In a presentation, it's easy to talk about and you can mention all the buzzwords like sales conversion, dwell times, and geofencing. How do you make it real? How do you take that data that is pouring off your systems, how do you interpret it, how do you push it through the right analytical models, and then how do you tie it into your existing CRM, POS, and other systems? How do we combine all of that information to get a more global look at sales conversion and store performance? That's the next step and we're almost to that point. There are a couple of technical hurdles we have to overcome.

There are a lot of privacy issues here and that's the elephant in the room when anyone talks about brick and mortar and location-based services – how do you maintain privacy? How do you ensure that the customer coming into your store who wants to interact with you provides you with that permission? At Microsoft, when we talk about these types of things, the question that comes up is, how are we ensuring that we are maintaining customer privacy? How are we ensuring that the personally identifiable information we are collecting through various interactive experiences meets the highest standards? How are we ensuring that anything we collect is encrypted?

"… that's the elephant in the room when anyone talks about brick and mortar and location-based services – how do you maintain privacy?"

Repeat Visits

How do you maintain privacy yet understand that someone has come to your store previously? The wireless networks provide you with the ability to understand that. But anything that comes off of our networks, we immediately scramble any characteristics of any of the data that would allow anybody at any future point the ability to tie it back to an individual.

We think that is the right thing to do initially, but we also recognize there is a significant opportunity for an opt-in model. That would really allow the customer to engage with us in a unique way once we had this data, but only after the customer opted into that experience and wanted to take it further. Then, for example, things like repeat visits, from a wireless infrastructure perspective are relatively easy to do. With the combination of CRM data, you then have the ability to deliver messaging back to customers that is truly customized. You know who they are, you know what they have done in your store historically, you know the nature of that relationship, and you also would have provided them with the ability to help them communicate to you why they are there. Are they coming in for service? Are they coming in because they have a problem? Are they coming in to actually look at a new device? There is an immense amount that you can do once customers have opted into that model and they are engaged with your system's interactive experience.

The presentations by Steven Keith Platt and Carl Ceresoli were followed by a moderated question and answer session:

Q: Your stores have a video wall and you were talking about how that is able to deliver messaging and that you are able to measure the impact of the messaging. Can you explain that?

Ceresoli: We do have a very large video wall ribbon that wraps around the perimeter of the store. How we measure the effectiveness of content we place on the wall is currently done around store traffic.

You hit on a key point, which is that we do have an immense amount of technology in our stores. But I think at a bare minimum, most retailers of any significance recognize that they need things like wireless infrastructure. That infrastructure alone has the capability to provide the majority of this type of information. That's what we're looking at. So you're asking me, how do we intend to measure the effectiveness of the video experience and the games that we place on the walls? The intent is to leverage the technology we've already deployed, the technology and infrastructure that already exists within our stores and leverage that to understand the impact on whether or not we are positively impacting consumer behavior.

What happens in our stores when we place those types of experiences and those types of messages on the video wall and provide that type of immersive experience? It's a combination of a couple things working. We are also looking at sales data, obviously, when the brand is up there, so for example, when messages about the Surface tablet run, what happens to sales of that product?

Q: Is there a measure of success? Carl, you actually mentioned several things that you wanted to measure and analyze: traffic, dwell time, sales conversion, and sales productivity. When you were working with these technologies in-store, were you able to detect that they met expectations for improvement in these areas?

Ceresoli: We were talking recently about how 50 years ago, retailers relied on traditional paper signs, traditional billboards, and static in-store messaging. Everybody assumed that these signs would have meaningful impact. Everybody

assumed that by placing these messages throughout various stores or throughout various locations, they would influence people. The trick was, it is very difficult to truly measure that effect. It was 50 years ago or more and eventually it got to the point where we were just assuming that it worked.

Now we have reached a point with digital signage where a lot of retailers are deploying a significant number of digital experiences within their stores. Over a three-year useful life, the cost around the care and feeding of those experiences – content, content production, content rendering, maintenance of that technology as it exists in the store – is a major expense. It is no longer tolerated that we are just going to assume that this is effective.

One of the things we did when I was at AT&T was to look extensively at stores that had video experiences and stores that didn't. We had both out there – very low-tech stores that just had devices, some had paper and marketing pieces, some had a sign or two that were over a particular device. For the most part, everything was fairly static. We then compared results to stores that had a very immersive experience. There is an impact and they do provide an even more engaging experience. We did see impact when we went out and deployed these technologies. As far as exactly the impact, I'm not sure I can share that, but I can tell you that the impacts we saw over the course of the life expectancy of that particular environment, there was a return on it and it was worth the investment. That is for the total cost of ownership, not just the initial investment in the technology, but the total cost over a three-year period within that environment.

Q: Steven, one of the things that Carl brought up, was mobile proximity marketing in stores. Is it a holy grail in retail? How do you view proximity marketing today?

Platt: Mobile marketing in a retail environment is conceptually a great idea. I think at some point in time, it will be a really unique marketing delivery system, however, with the state of things as they currently are, there are many practical challenges associated with implementing just the store-based analytics piece, much less the mobile marketing piece. I think that there is a lot of hype around it, at least in the short term.

Let me give you a practical, in-the-store type of situation: You want to deliver a coupon to somebody in the cookie area via this technology. Hopefully, the content will be customized because you know who the customer is from your loyalty program. There are a lot of things that have to come together in a really practical way. The message has to be created, the inputs on who that person is also have to be drawn on, i.e. we identify them through our CRM system. We have to also make sure we have that product in stock and on the shelf, etc.

This will be very big at some point in time. We're very much on the leading edge of just getting these location-based analytics systems deployed, and getting all the software and data into the warehouses so that it can be extracted and analyzed. Even more important is getting that data distributed through the organizations so that people can take action on it as opposed to it just sitting somewhere. So I think from our retail customer base, they're watching it, but it's still quite a few years out.

Skorupa: I think what we're talking about here is the pioneering era, the new frontier era. We're talking about those who are early adopters looking for an edge and actually establishing what will emerge. The downside is potentially reaching out and touching someone in an intimate, personalized way that is not relevant, which ends up actually turning off the person as opposed to converting into a sale. So the potential downside is quite high and people are going at it very tentatively at this point.

Q: Carl, how far down the road do you see proximity marketing and where do you see the phases of development for it?

Ceresoli: We have talked a lot about the downsides and some of the technical challenges of proximity marketing. One thing I did want to say is that we're right on the cusp and the technology is just about there. There will ultimately be some really cool things that happen within your traditional brick-and-mortar facilities that the consumer would not necessarily expect, things that are closer to the online experience. We are almost there but the technology will take a little bit more time to mature. There are just a few variables that have to be figured out and I would definitely agree that there are some pioneering retailers out there that are trying to stake some claim to this space, or that are trying to look at these experiences and that is really what it's going to take.

Q: Steven, what's changed about traffic counting and video observation systems in light of how important it has become for stores to aggregate greater sources of analytics?

Platt: Obviously, traffic counting and video instruments have been around for a very long time, but there are several considerations that are impacting the drive toward Wi-Fi, cell, and other instruments within a store. One is an issue of accuracy. Take a very simplistic traffic counter that consists of a beam of light at the door. You could have one little kid going back and forth 58 times and the data becomes meaningless, so it's really difficult to get accurate counts off those devices. Video is outstanding and it has been around a long time. The problem is that the cost to put cameras in a retail chain of any size is prohibitive. However, when you look at some of the newer technologies like Wi-Fi, almost every retailer already has, or will be installing, a Wi-Fi network in their stores. They just have no choice; consumers are demanding that ability. If you could just add on a couple of extra instruments or a few extra access points throughout the store and some hardware, you can be pulling up traffic systemwide, continuously. The proposition changes dramatically.

Q: What's going on with mobile in stores today and what is its impact?

Ceresoli: From an analytics perspective, specifically around mobile, wireless networks, the way that they are designed, and how they have operated since the beginning of wireless networks, is very similar to the cellular networks. And there is a lot of information that a mobile device passes to and from your wireless infrastructure. It passes information like historical information, it opens that up to the wireless network, and the reason that it does that is the wireless network is always trying to optimize itself to ensure that it has the best possible connection to that device, and that speeds are what they need to be. It does that so it can balance traffic loads and things of that nature.

There are two ways to look at that question: "What type of information can you see without the customer opting in?" and "What type of information can you see after the customer opts in?" These are two completely different opportunities. The information you can see without that opt-in is rather generic. You can see things that would allow you to do heat mapping. You can see aggregated information that would allow you to see dwell times. You can see information that would allow you to extrapolate traffic count information. And we have no desire to see that individual uniquely. At Microsoft, we would not want to engage with that customer unless he has specifically, explicitly, given us permission to do so.

I think that there is a balance that is going on right now. When somebody is online, their expectation of privacy and what people are doing and how cookies work and how the analytical engines work with particular online retailers – there's an assumption that that's already there. But when people physically walk into a brick-and-mortar facility, their expectations are very different as far as how they

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are going to grant permission for that particular retailer to engage with them and their assumptions around what that retailer can see and what they can't see. We are intensely sensitive to that and want to make sure that we don't engage customers until they are ready to allow us to.

Where is mobile marketing going to be in 10 years? I have to be honest with you; I have no idea. Right now, we are looking at the next three years and things are changing so quickly that a year from now, wireless infrastructure, wireless capabilities, and beacons will have changed the landscape dramatically. There are things that we won't even be able to predict simply because the technology is not there yet, but it's evolving so rapidly, that what will be possible in 10 years is anybody's guess. Five years, I think is a little bit more realistic, but three years is what we typically shoot for. We can see out roughly three years because as technology matures, it has to be propagated to the marketplace and reach critical mass. When we look at building our larger facilities that are being planned for New York and some of our other new locations, we're building to deliver to that level of experience. So we'll have the latest infrastructure that will be able to get us to the interactive experience from a mobile perspective. We hope to be able to future-proof that as much as possible, but only out as far as three years.

Q: Steven, this is kind of specific to what's going on in stores, a little less futuristic than Carl just spoke about, but how can location-based analytics support some of the current in-store technologies or work with things such as digital signage?

Platt: Using in-store analytics to understand the impact of digital signage is an example of what is so great about this technology. There are so many things you can do with it. For example, you want to measure if specific content increases dwell time in front of a product; you want to measure whether specific content drives people to the other side of the store; or you want to measure specific content and its ability to upsell.

We could then start aggregating analytics throughout the store to show, for example, if we put particular merchandise in a specific place and advertise it or promote it on a specific sign in different locations in the store, whether or not we get an uptick in sales. The analytics that are driven just off one simple thing, like measuring response to digital signage content, could really enhance and improve store operations. At the end of the day, that's really what this is about.

How to Set Up and Execute a Big Data Warehouse in a Retail Environment

By Arusha Goyal, Founder/CEO, GCG

In today's day and age, data is daunting. There is an endless number of internal and third-party external systems, not to mention all the channels by which data is collected and stored in any organization. The data is collected, but, then what? How do you make any sense out of this data? First it must be organized and accessible. Often times this data is collected and stored and then will never be touched again. It just takes up storage either locally or in the cloud. Organizing this data and prioritizing the data to then bring it into the data warehouse is where the effort really lies. The effort to get the data often isn't the hard part – it's collecting it, marrying it together with other meaningful data, and then delivering it to the end user. The purpose of this article is to discuss setting up a data warehouse in a retail environment. Realize that once embarking on a data warehouse project, it really never ends, but grows and requires constant care and feeding. It becomes like any other enterprise suite of applications that needs to be maintained or it gets outdated.

Establishing big data as a priority

The only way a big data project can and will succeed in retail or any other environment for that matter, is to have it prioritized as a top initiative either from the CEO or another key stakeholder at the C-suite level. Without ownership and buy-in from a key stakeholder, the big data warehouse project will not be successful. The initiative needs to come as a request from the top. Once a key stakeholder is identified, the executives of each of the functional areas within the retail corporate organization also need to be brought together and represented. Functions that may be involved include, but are not limited to: Store Operations, Loss Prevention, Merchants, Allocation, Planning, Logistics, Marketing, ecommerce, Field/Store Leadership, HR, Finance, Accounting, IT, and any other groups within the organization. If there is an international component, and international is contained within the functions above, it should be considered in the discussion. Otherwise if international is a separate function, it should also be invited to the table.

Basically, in the initial discussions, all functions should be brought together to discuss the big data initiative. From this executive group, top-level priorities can be determined. For example, is it more important to bring in daily, or real-time sales data versus bringing in purchase order data? Is ecommerce another top priority within the organization? If so, does ecommerce data with brick-and-mortar data have more relevance together instead of looking at them individually? This discussion can help identify the priorities of what data to bring into the data warehouse and in what time frame, which ultimately leads to a data warehouse roadmap. Building this roadmap with the details of data points and timelines establishes everyone's understanding of what and when data will become available. This roadmap should be used as a point of reference throughout the life of the data warehouse project and likely will be enhanced and even modified as the organizations' priorities and strategies shift.

Understanding the burning business questions that are asked over and over again by those involved and understanding the roadblocks to answering the questions are what become priorities. As a cautionary note, however, if the time to answer the prioritized questions is longer than tolerable, the likelihood of needing the answer becomes less of a priority because the question has

changed. The timelines to deliver answers to questions should be kept top of mind so as not to be answering a stale question.

In my experience, big data warehouse project stakeholders often tend to be in the IT organization. While IT is a huge component of the project because it is the IT resources who need to extract and build the data warehouse environment, having a stakeholder from the business is often the key to greater success in the retail environment. The stakeholder can be anyone from the organization who consumes data or understands the usefulness in the consumption of data.

One additional key point to keep in mind as data points are being discussed is that it is important to omit or mask any data that affects customer privacy, such as a combination of name, address, phone number, credit card numbers, Social Security numbers, etc. Remaining PCI compliant and following the policies around data privacy are key components and can create huge breaches if not considered and carefully analyzed. In the event that sensitive data is required – for example, if HR requires payroll data to do reporting on employees – keeping the security group within IT involved in the data warehouse project is essential. The security group can help define tight controls around data that should only be accessible to a select few.

Pilot group and work streams

Once an understanding of the priority of data has been established, a pilot group and multiple work streams should be formed. The pilot group should represent one to two key members of each functional area of the organization who will be impacted by the delivery of the first round of data. Keeping other functional groups informed from a high level is also important so they can stay close to the progress of the data being collected and possible usability of the data. The pilot group in total then can further be broken into work streams, by functional area or even by metrics. For example, grouping functional areas together that are tightly associated in their responsibilities such as Store Operations with Loss Prevention can streamline the effectiveness of the discussions. Another way to further break down the pilot group is by metrics. So, for example, if Finance and Store Operations have similar metrics, but definitions vary, bringing these groups together to understand their perspectives on the metric can help define the metric appropriately for each group. This forum then also serves as a platform to understand each other's definition better, which then is very helpful when using the metric in the data warehouse environment.

Now that the initial requirements of the data have been defined, IT can start creating the data and getting it into a form that is consumable to the end users. The key here is for IT to provide something back to the end users in some reasonable amount of time. Perhaps a weekly or biweekly release cycle would be effective. This keeps the end user engaged and keeps the project top of mind. Each of the work streams should be delivered the new data, have some time to review individually, and then a meeting should be scheduled where a demo is performed using the data available. The users should come to each of the work stream meetings prepared to discuss the data and any issues in the definition of the data. Once each work stream reviews the data, the issues should be captured and sent back to the IT team for modification. The revisions then become part of a subsequent release. Staying on this cycle until the data for the first set of priorities is complete keeps the users and IT engaged and keeps the data and the project top of mind. Once the priorities are complete, this could then be called Phase 1 or Release 1. At this point, creating a training session to deploy to a larger set of end users is useful. The pilot group in effect just became the super users and rolling out the release to the rest of the groups will be easier with the help and guidance of the pilot group.

Big data warehouse (cont'd.)

So there you have it. Take these same steps and continue on to future releases as defined by the roadmap. Make tweaks to the roadmap to ensure that the roadmap stays relevant and is answering the most burning questions of the organization and is in line with the strategic direction of the company.

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Leveraging Location-Based Marketing in Retail

By Asif Khan, Executive Director, Location-Based Marketing Association

Location-based services

Location-based service (LBS) can be defined as a social, entertainment or information service, enabling a company to reach and engage with its audience through tools and platforms that capture the geographic location of the audience. The delivery mechanisms used for LBS include mobile internet, mobile applications, short message service (SMS) text messaging, multimedia messaging service (MMS), services using GPS, indoor location services, digital out of home (OOH), digital signage, print media, and television. New data from the Location Based Marketing Association reports that location-based services will reach $16.3 billion in 2015.

Location-based marketing

Location-based marketing (LBM) bridges the gap between all forms of marketing media, inclusive of social media, the internet, OOH, and real-life interaction. LBM covers the utilization and/or integration of all media to engage and market to people in specific places with specific offerings. LBM uses location-based services to reach and engage with consumers based upon where they are located.

Understanding the differences

If location-based services are the technology and media delivery platforms used for the identification of an individual's location and preferences, then location-based marketing is the use of these platforms by brands, retailers, and their agencies to target the message to individuals and engage with them based on their location. The key is that location is most often linked to a specific intent to buy or research products and services at that moment in time.

The reality is that we are moving to a world where every person, place, and thing will be "real-time," geo-addressable, or tagged unless individuals specifically "opt out," even temporarily. Such a world enables us to create both one-to-one and one-to-many marketing messages in the context of geo-relationships.

The retail sector is particularly poised to be affected from this consumer engagement approach as the combination of in-store marketing, mobile marketing, direct mail, television and other "traditional" media have the ability to reach large numbers of consumers in a personal and highly relevant way on multiple levels, at that moment in time.

The notion of opt-in is critical to the relevance and effectiveness of location-based marketing. Encouraging and possibly incenting consumers to opt-in to a LBM service will enable marketers to collect information about individual consumers (e.g. demographic, preferences, purchase habits) and deliver more relevant value-added messages and offers. The balancing act will be in collecting and managing the information that can also be augmented and potentially monetized at an aggregate level, while at the same time respecting consumers privacy. The benefit to the consumers and the rationale for opting-in will be that they receive messages and offers they would otherwise not have seen, but in return, they have revealed their behaviors or preferences for data analysts to study.

The ability to tailor the messages that reach the consumer is also a benefit of LBM; digital signage can be updated almost instantly to reflect current news and events. Local mobile advertising networks are offering location-based services and collecting promising data on response rates. For example, coupons delivered

via mobile phones tend to generate response rates in the 10 percent to 20 percent range, rather than the 1 percent rate for coupons delivered in print media.

The intelligent and empowered consumer

Increasingly, consumers will have access to greater information about the products they are looking for and have a greater capacity to negotiate on the spot with the retailer.

The power extends to more than just price matching and into service as well. Not just from the competitor's store or mall having greater support services likes maps and vouchers, but also in any service setting like an airport or concert theater. Being offered upgrades or fast-track status – that can often cost the seller very little but add significant value to the consumer – is easily possible with an integrated LBM system. Knowing who the individual happens to be, exactly where they are, and precisely when they are there is key. It allows the seller to target offers to selected individuals (for example, who they want to keep loyal, to fix a previous error, or encourage a key influencer), and push a highly relevant offer to them when they would like it most. It is the identification of these parameters that should be key to understanding where LBM can have the greatest impact for merchants.

Not just discounts or coupons

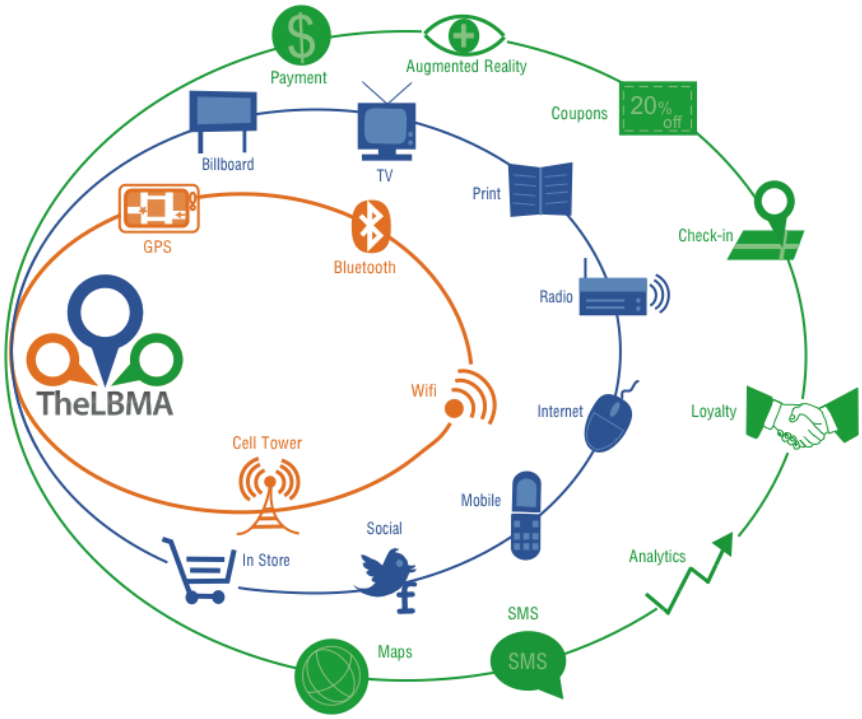
The marketing benefits of offering discounts to encourage shoppers to go to a store are well founded. Typically, at large retailers this technique can be a well-heeled marketing experience. It runs from the top-level branding campaigns to high-profile locations and signage as well as the regular flyers that absorb huge effort and budget at a national level.

Offering coupons and discounts is not necessarily where the individual store sees the value in digital marketing. Naturally there is the benefit of selling more lines of product that are currently on "offer" and if this draws more people to the store, then there is the potential for them to increase spending while at the store. But LBM offers many other opportunities that help the consumer enrich the shopping experience, to include service attributes such as which cash wrap is faster. Additionally, it can provide a map of the store, or even the mall. Knowing where you parked your car and being shown how to get back to it from anywhere, you are much more likely to take a different path around the mall or store. If visitors to a mall can be encouraged to use different parking areas and different entrances, they will be encouraged to pass stores they would typically miss.

Defining the location-based value chain

Location-based marketing allows a greater level of consumer engagement by delivering messages and promotions to consumers at the right place and the right time – ideally at the point of purchase decision. Location-based marketing, enabled by mobile and digital technology, is transforming the marketing industry in a significant way. All traditional players along the value chain are impacted by these new capabilities and new entrants in various segments of the value chain are looking for opportunities to create untapped value for brands, retailers and consumers. At this early stage of the era of location-based marketing, existing and new stakeholders are looking to position themselves in this technology-enabled ecosystem.

In the diagram below, we show a blended view of location marketing. The inner ring highlights the predominant technologies in use today to determine the location of a targeted consumer. The middle ring reflects the available media that may be near that consumer, that as marketers we can use to influence them. The outer ring links the first two together in a transactional or informational engagement scenario uniting people, places and media.



Consumption of advertising/marketing content

For retailers, location-based marketing is very appealing as it allows them to communicate to mass customers at a personal level. Targeting people based on their location creates a higher level of engagement. A number of retailers, such as Hudson's Bay Company/Lord & Taylor, Walgreens and Macy's have been experimenting with technologies like beacons to understand the exact position of a consumer in their stores and to push messages/offers at a relevant time and place.

One of the key benefits of LBM for retailers is the use of indoor location to track consumer traffic patterns in retail, which can help with store and display design, layout, and optimization.

Final thoughts

Is location-based marketing disruptive or empowering? The answer to both questions is yes. Location-based marketing is here to stay and will provide retailers with another avenue to reach out to their customers in a new, inexpensive, and faster way. Companies that embrace it will be more agile than their competitors, while those that don't will be left behind.

Customers will feel empowered by the ability to control what they buy, when and where they want. Being able to meet their demands while they are in-store will make them feel more important and help build loyalty to a retailer's brand.

Asif Khan is Executive Director of the Toronto-based Location Based Marketing Association.

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Shoppertunities: The Changing South African Retail Sector

By Kerry Chipp, Senior Lecturer, Gordon Institute of Business Science, University of Pretoria

Half of the South African retail sector accounts for $40 billion in spend – and the urbanized population is only 25 million. There is very little consumer shopper data available publically on South African shopping centers, so the current study was aimed at plugging this gap as we believed that a shopper has a different mindset to a consumer. Our study differentiated between *destination* malls – large entities with many supplementary activities and a wide set of brands – and *main* malls. Main malls have a more localized catchment area and a more restricted offering. We then built on a study done by Wharton's business school as we asked respondents to rate the mall on three key factors identified by the American study: accessibility, comfort, and discovery, to which we added ability to socialize and the reason for the visit. Respondents were interviewed twice – once on mall entry and again on exit. We had 4,200 respondents across seven malls, all of which were in the four main cities – Johannesburg, Cape Town, Pretoria, and Durban. The data was collected by AC Nielsen and the study was designed and analyzed by the Gordon Institute of Business Science (GIBS), the business school of the University of Pretoria.

We found that large malls work because of the experience they offer. If experience is king, it is about the variety of the offering, the ability to socialize, discovery of new products, and the comfort of the mall itself. Smaller malls are about running in and running out again – their shoppers are in a far more goal-focused mindset and therefore ease of navigation is most important. They are far less likely a means of socialization or a place of new experiences. Destination malls are for the outing; people visit more categories (three on average as opposed to two for the main malls). Half of all category visits are unintended, though, regardless of mall. Thus there appears to be a lot of unplanned activity on the part of our shoppers. Destination malls score higher in terms of unplanned visits (40 percent as opposed to 30 percent for main malls) and the main beneficiaries of these are restaurants, department stores, food, and clothing. Coffee bars feature strongly for both types of malls; department stores less so for smaller malls. The great question is where the coffee shop is placed; if it is away from the main shopping precinct, near the exit, this is a lost opportunity. Some department stores have embraced the coffee shop; they need to consider placing this shop in the center or between categories in order to encourage cross-category shopping. Promotional display around coffee shops is currently underutilized.

In terms of spend, main malls lose out with 10 percent less spend than destination malls. Nevertheless, 80 percent of our shoppers spent. What was most interesting is that four in ten of those purchases were unintended at the outset. Unintended spend equates to $1.3 billion monthly. What surprised the research team the most was the fact that 36 percent of spend was attributed to in-mall promotional activity, with respondents who had noticed more in-mall signage, product demonstrations, and the like, having a higher purchase propensity. We performed a regression between a summarized set of promotional activity and spend to obtain this result. It was surprising as we did not measure one campaign, nor did we track in-store advertising; we simply looked at degree of advertising exposure. Thus, in a mall with an average of 800,000 monthly visitors, 288,000 purport to be influenced by the presence of in-mall advertising and marketing activations. This equates to a monthly spend of $1.2 billion. We summarized spend as a direct result of variety of stores and the ability to browse, which is time-dependent.

$$store\ variety + \frac{extended\ browsing}{time\ available} = \log_{spend}$$

We then segmented our respondent base to see if there were groups of activities that drove visits. We found five types: the goal-directed, the business shopper, the socializer or leisure shopper, the take-a-break visit, and the general shop. The goal-directed dominated, followed by those who were taking a break. What is of greatest interest about these groups is that the business shoppers – people who visit the mall for a business meeting then take advantage of their location to do shopping that they are otherwise unable to do – spend four times their weight in numbers. We believe due to their time poverty, they are less likely to be price sensitive – although this is to be investigated in another study. After the business shopper, the greatest spenders for their numbers are those on a break – so retail therapy appears to be alive and well. Many are popping in from nearby locales and are on their own or with a friend. The socializers or leisure shoppers differ as they come to meet friends and spend a great deal of time in the entertainment space of the mall. We characterized the general shopper – who abhors the entertainment space – as "someone who has come to push a cart around." Shopping is a chore and a duty for the general shopper; they, however, rely on the retail space to map their shopping lists.

In-mall triggers are important: many said that advertising got them to the mall, but once there, few items were indicated as bought directly due to an SMS or special offer advertised outside of the mall. They liked to purchase items on special that they noticed in the store, which suggests that they are deal prone. Moreover, there was a high propensity to only remember things they need once in the mall, which suggests that triggers in the local environment are effective. The importance of the last mile must be emphasized.

Smartphone usage, while climbing, is not at a level seen in the developed world. Sixty two percent had smartphones, but, due to few mall offerings, most (71 percent) don't enable Wi-Fi on their phones when entering the mall. This is a lost opportunity for the kind of targeted offerings, profiling, and data collection seen internationally. South African retailers need to carefully build a value proposition for the mobile space as the last mile can never be fully optimized without the matching that location-based mobile communication can do.

In conclusion, mall owners should consider the main drivers of visits and mall type when considering mall activities and navigation. Store mix remains important and entertainment is of greater concern for the destination malls than for the main malls, which must look to ease of navigation. Restaurants and coffee shops have the ability to increase spend if placed in spaces where cross-category promotions can be made. The business shopper is a prime candidate for promotions targeted at meeting places within the mall. The mall environment remains paramount and ensuring that advertising space is utilized and attractive has a relationship with spend. Currently the mobile technology is present in this emerging market, but retailers have yet to realize its potential.

Kerry Chipp is a full time senior lecturer at the Gordon Institute of Business Science, the business school of the University of Pretoria.

Second in a Series

Six Degrees of Digital Connections: Growing Grocery Sales in an Omni-channel World

By Bill Bishop, Chief Architect, brickmeetsclick.com

The following article is the second of three parts excerpted from a report of a study regarding the impact of digital media in a retail environment. Focused exclusively on grocery shoppers, the study surveyed more than 22,000 customers from the west coast, the Midwest, and Northeast regions of the United States. The shoppers were recruited in cooperation with six retail brands. The interviews were done online, and all of the shoppers were digitally connected with the participating retail brand. The focus on digitally connected shoppers provides solid insight into how customers will be shopping in the future. One unique output is a series of benchmarks that grocery retailers can use to see how their customers compare to a broad cross-section of shoppers. The lessons learned apply to retailers outside the grocery vertical market as well.

A summary of Part 1, which was published in the 3rd Quarter 2014 edition of the Journal of Retail Analytics, follows:

In this period of huge change for all retailers, there is much specifically for grocers to consider – especially concerning how best to communicate and connect with their shoppers. This report is written for senior retail executives and their organizations who want to learn more about how grocery shoppers are using digital connections and who want to find out what they can do to ensure that their businesses don't fall behind. Print is not dead, but shoppers already live in an omni-channel world. Digital communication channels have become a permanent part of our lives, and they deserve a central spot in strategic planning. Email, websites, texting, social media, mobile and even online shopping – the six degrees of digital connection examined in this study – support and enrich the in-store shopping experience in ways that consumers are beginning to expect from all retailers, including their grocery retailers. In a competitive situation, these connections can tip the balance when it comes to choosing one store over another. For a long time, it was possible for a retailer to reach 70, 80, even 90 percent of its customer base by investing in daily newspaper delivery of the store circular, but circulation is shrinking, especially in smaller communities. The mass communications model is far less effective and efficient than it used to be, and the digital natives of the millennial generation are starting families and entering their prime buying years. Today, print is just one of many channels people use to meet their shopping needs.

As a result, grocery retailers need to think and plan differently about how to reach their customers in order to maintain competitive advantage. This report will help retailers make more confident investment decisions about their digital communications programs. It combines new research on the digital shopping habits of more than 22,000 grocery shoppers with Brick Meets Click's long experience in the supermarket sector to answer key questions faced by senior leaders in the industry.

Here are some key points from Part 1 of the series:

"The question that matters to many retailers is this: If I invest in digital connections with shoppers, will that have a positive impact on how they shop? We found strong evidence that the answer is yes."

The reasons for this are as follows:

- Building digital connections can help grow primary shoppers.
- Increasing digital connections can drive up satisfaction with shopping the store.
- Satisfaction with retailer-delivered online experience lags the in-store experience.
- Email and web sites reach the largest percentage of shoppers.
- Texting reaches relatively few shoppers compared to its potential.
- The majority of shoppers are active on Facebook.
- Smartphones impact nearly all the digital connections.
- When it comes to mobile shopping apps, coupon apps are most popular with grocery shoppers, but a range of other apps are also used.

Part 1 included five of the six types of digital connections: email, websites, texting, social networks, and mobile apps and devices. This second installment in the three-part series begins with a look at the sixth type of digital connection – Online Shopping.

Online Grocery Shopping

Many grocery shoppers have long wished for an alternative to having to go to the store. Partly this was motivated by not having the time needed to shop the way they'd like to for their households, but it's also because of a general dissatisfaction with the task of grocery shopping. When online grocery first appeared in the late 1990s, it offered the promise of a better way to shop.

So far, however, online grocery remains only a small fraction of the market primarily because of the cost of performing the service. Today online grocery services are offered in a variety of "flavors."

- Online-only with home delivery – like Amazon in the U.S. and Ocado in the UK. Amazon also offers subscription purchases for non-food items like diapers and paper products.
- Online-only grocers with delivery or community pickup options – like Peapod and Relay Foods.
- Third-party, online-only services that will shop several retailers and deliver – Instacart in the U.S. and Pocket Shop in the UK let customers order from multiple brick-and-mortar retailers; mySupermarket lets users order from multiple online retailers.
- Brick-and-mortar grocers who offer online ordering with delivery and/or pickup options – there are many, and more are adding this service every day.

For the purposes of this study, all of these variations were considered "online grocery shopping."

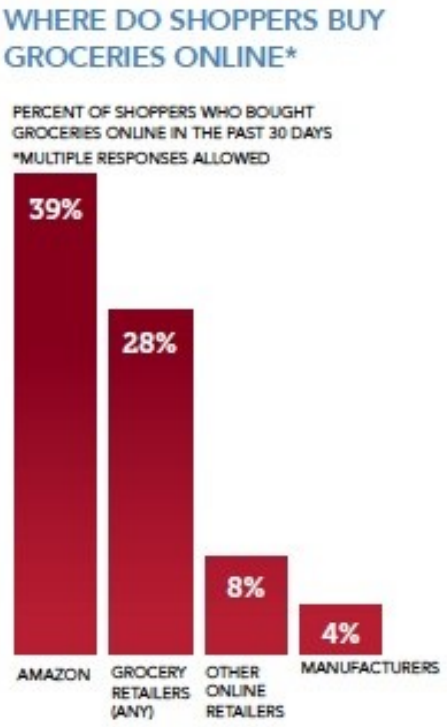
The top reason shoppers buy groceries online is to get products not available in their stores, but saving time and saving money are also important.

Shoppers bought groceries online for a variety of reasons. The top reason – chosen by 61 percent – was to be able to buy products that the shopper couldn't always find in their stores. This is the driver for most of the purchases of just one or two different products. The other reasons for buying groceries online relate to saving time that would otherwise be used walking the entire store, and being

able to shop for center-store products without being tempted to spend more than planned on impulse and sale items.

Top source for online grocery purchases was – wait for it – Amazon.

Amazon is the dominant source for online grocery purchases. Thirty-nine percent of all online grocery customers bought from Amazon. Grocery retailers collectively served 28 percent of online shoppers. Other online retailers handled 8 percent of customers. Manufacturers served 4 percent.



11 percent of all shoppers are buying some grocery products online.

More than one in 10 grocery shoppers did some grocery shopping online in the last 30 days. There wasn't much variation across grocery brands; however, two brands shared the maximum 16 percent of shoppers doing some grocery buying online, but for different reasons:

- One offered its own online shopping and delivery program.
- The other had offered online ordering with store pickup in some of its stores, and a major competitor offered online grocery with delivery.

It's interesting to note the effect that the competitor's offering had on pulling up the numbers in the second note above. Simply the increased presence of an online ordering option in the marketplace – a bigger "supply" if you will – drove up shopper demand. On average, 3 percent of all grocery spending was done online. While the average spending online didn't vary much across brands, shoppers at two grocery retailers spent 6 percent online, twice as much as the average.

Maximizing the impact of digital connections

Today, instead of daily newspapers and broadcast networks that reach nearly everyone, people rely on a variety of digital connections to meet their needs – including their shopping needs. The six degrees of digital connection are a way to replace what used to be accomplished through mass communications, but mass communication strategies don't translate directly to the new digital channels.

Connecting with shoppers now is less about pushing out mass messages and more about building interest in what the retailer is doing. This is a different way of thinking about connecting with shoppers and it has a valuable advantage over the old ways if you understand the key.

Key insight: Digital connections are not separate from the in-store experience; they enrich and support it. And they enhance the in-store experience in ways that mass media messages never could, creating a continuous connection to the store that feeds interest, loyalty, and sales.

Grocery retailers need to make two changes to ensure they get the best return from their investment in digital connections.

1. Expand the way you define your value proposition.

To the traditional elements of price, variety, quality, and service, you need to add:

- Ensuring the store is an interesting place.
- Delivering a worthwhile experience both in-store and online.

The store is the center and foundation of this strategy – it is the richest source of "content" for food retailers. Most of all, it can't be boring. The stores that currently enjoy the strongest sales growth – Whole Foods in the up market and WinCo in the price/ value segment – are winning more business for this reason.

2. Get everyone on board.

It's extremely important to bring all the business functions along together so that they understand the importance of taking a different approach to communicating with today's grocery shoppers. It's clear that top management's commitment will be required to achieve this alignment. All of retailing – not just grocery – is wrestling with this challenge.

- This is not just a job for marketing. Everyone needs to be pulling together toward the same end – listening to and responding to customers. Helping everyone in the organization see and understand the role they need to play in making this important pivot is key.
- It's also not just a job for the website or ecommerce teams. These staff members rarely have retail experience, so they are not equipped to identify opportunities that connect shoppers with the store. Plus, their incentive structures often are based on clicks or ecommerce rather than being aligned with store performance.

Don't overlook the possibility of bringing in younger staff from your stores with an aptitude in this area to be part of your development team. Knowing how digital connections and stores work can help focus digital activities on practical store-related retailing issues.

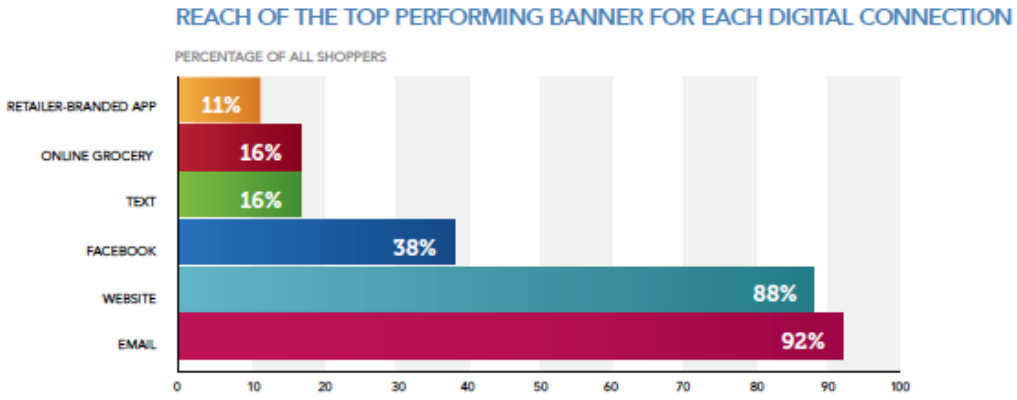
Maximum reach by brand: How the six degrees stack up

The current maximum penetration for each of the six digital connections is illustrated below. The most common – email, websites, Facebook, and texting – are in such widespread, general use that if you don't offer them you risk falling behind shopper expectations and creating a vulnerability.

Texting, while on the light side, is quite universal and effective when used. The other two – retailer's branded app and online grocery – are more specialized and tend to be used by high-value shoppers; these connections represent an opportunity to carve out competitive advantage.

Six Degrees (cont'd.)

The choices you make about your digital communications program should reflect the broader way your shoppers are using digital connections in their lives. For example, rural retailers whose customers don't have broadband service might focus on texting, and online grocery and shopping apps will be more familiar to customers in some markets than others. Your program should also reflect what other retailers in your market have been able to achieve with their customers.



Common connections: Email, websites, social networks, and texting

- Email and website visits: These connections reach more than three-quarters of grocery shoppers. Many competitors are already active here, so retailers need to be careful not to let these become areas of vulnerability.
- Social networks: Facebook and other social networks reach about half of shoppers today, and that number will increase. This connection requires careful listening to what shoppers are saying and the willingness to actually interact and respond, but the influence of "friends and family" on shopping decisions continues to grow. It's only a matter of time before social networks rival the reach of email and websites.
- Texting: Texting isn't used by a majority of shoppers to engage with food retailers yet, but given its extremely widespread penetration, it's an option that shoppers often expect to see. For those retailers who have developed a large base of shoppers that receive text messages from them, texting has proven effective for alerting customers to short-term promotions and enhancing customer service.

<<You risk falling behind shopper expectations if you don't offer these connections.

Special connections: Mobile apps and online shopping

- Retailer-branded smartphone apps: These may have the potential to be the richest and most potent digital connection since they put a wide range of shopping tools and support literally into the shopper's hand.
- Online grocery shopping: Online grocery is emerging as an important new customer need. Currently it exists in many forms. It can be complex to put into place, but at the same time, it appears to be an increasingly necessary part of the business. More grocery shopping will be done through this channel in the years immediately ahead.

<<These connections represent opportunities to carve out competitive advantage with high-value shoppers.

Food for thought

Each retailer's digital communications strategy will reflect what it stands for and how it intends to win business. Here is some food for thought as you consider initiating or improving your program.

Email

This can be a powerful way to deliver "new news" to shoppers, but there's plenty of competition in the inbox. Whatever you can do to make emails more relevant to the individual shopper will increase their effectiveness. For example:

- If you can, leverage the data from your loyalty program to customize and personalize email content to make it more relevant.
- If you can't leverage loyalty data, offer shoppers the opportunity to choose emails that are customized to appeal to important shopper interest segments, like households with school-age children.

Websites

While checking specials and getting coupons from the weekly circular are the top reasons for visiting grocer websites, shoppers also seek inspiration, ideas, and help. Consider the following to expand this connection:

- Sell them something when they visit. Add a "marketplace" where shoppers can purchase items online that are not available in the store.
- Work with selected suppliers to add unique and interesting content. Check out what Walgreen's is doing on Walgreens.com/solutions to provide answers on health and wellness issues.

Texting

Texting is a convenient mobile platform. It's available to all. It's direct, immediate, one-to-one communication, and it has a lot of room for growth. To expand shopper use of this connection, you could:

- Integrate texting into the communication of "all digital promotions."
- Use it as an easy self-service tracking device for multi-visit continuity promotions – earning "this" after six visits to the store, for example.
- Add customer service features like notifying shoppers when their prescription, deli, or bakery orders are ready for pickup.

Social Networks

Social engagement gives you an extremely "shareable environment" in which to talk about what's happening in the store – and it also enables you to gather "social intelligence" about what shoppers like, don't like, and wish for. To expand shopper engagement:

- Increase the availability of content that's relevant to shoppers in each store – local content in particular.
- Content that connects emotionally attracts the most engagement. Highlight community outreach activities and show appreciation for customers and employees.
- Listen for clues you can use to grow the business and improve customer service.

Retailer branded mobile apps

Retailer-branded apps deliver a proprietary set of services that can help differentiate a retailer from the competition and make it harder for customers to switch from that retailer because of their familiarity with the tool.

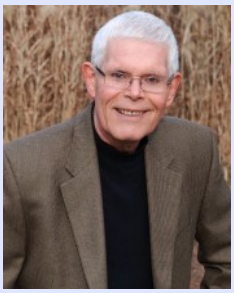
There are challenges. Technology is evolving rapidly so keeping up takes continuous effort. Also, the relatively low penetration levels suggest that retailers need to have a plan to help their shoppers understand the benefits of the app and make it easy for them to use.

Online grocery shopping

The popularity of online grocery shopping is growing, and it's becoming clear that shoppers are using different types of online shopping for different shopping occasions, similar to the way they use different stores.

- The most common need driving online grocery purchases is to get products not available in the store.
- Saving time when a major stock-up trip is needed is another common need satisfied by online grocery. The growing popularity of click-and-collect (online ordering with store pickup) is a direct response to this need.
- Delivery adds value, but also brings a cost that limits its appeal.

In the final installment of this series in the next Journal of Retail Analytics, the Brick Meets Click report concludes with a section titled Futureshock: Preparing for Online Grocery. The report suggests that 10 percent of grocery shopping may shift to online within the next 10 years, if certain conditions are met. Learn more in the 1st Quarter 2015 Journal of Retail Analytics.



Bill Bishop is the Chief Architect of brickmeetsclick.com.

The Use of Multiple Media by Social Media Users

By Martin P. Block, Professor, and Executive Director, Retail Analytics Council (RAC); Don E. Schultz, Professor (Emeritus-in-Service) and Director, RAC; and Vijay Viswanathan, Assistant Professor and Director, RAC, the Medill School, Integrated Marketing Communications Department, Northwestern University

Abstract

With the growing use of multiple media, firms have to understand the combination of media used by their target segments. This study examines the use of multiple media by two important target segments – individuals who use social media to seek product information, and those who use social media to share product information. The theoretical framework is based on the premise that understanding individuals' motivations for searching or sharing information can help explain the combination of media they consume. A multiple discrete- continuous choice extreme value (MDCEV) model that allows use of multiple media is used for the estimation. The study reveals interesting differences in the combination of media consumed by these groups of individuals. In summary, it was found that individuals who regularly seek product information spend more time on the Internet and less time on television and radio during prime time. However, individuals who share product information using social media spend more time, in aggregate, on television and the Internet. The results have important implications for firms' media plans and communication strategies.

1. Introduction

With a multitude of media forms now available to individuals, there is increasing evidence of cross-platform or multiple media use. Rideout, Foehr and Roberts (2010) find that 8-18-year-olds increased their time with multiple media from an average of 8.5 hours per day in 2005 to nearly 10 hours and 45 minutes per day in 2010. In its recent cross-platform study, Nielsen (2011) reports that more than 80 million households in the U.S. have access to both cable television and broadband Internet. Interestingly, while use of digital media is on the rise with 48 percent of U.S. households watching video online, non-shifted television is still the dominant medium and seems unaffected by increasing use of other media.

Accounting for the various media touch points is a fundamental aspect of integrated marketing communications (Calder and Malthouse, 2005; Schultz and Schultz, 2004). For instance, traditional marketing mix models that do not take into account the effects of digital media may overstate the importance of traditional advertising. Some studies have examined the synergies or interaction effects of advertising efforts across different media (e.g., Naik, Raman and Winer, 2005). However, these studies infer synergies at an aggregate level from firms' advertising efforts. Our study is different in that it considers at an individual level the underlying motivations for using a certain medium, and thus explains the nature and combination of media consumed by different groups of individuals. We concur with Block et al. (2009, p.96) who emphasize that an important media form is one that influences the consumer's decision-making and not one where the firms' efforts are concentrated.

In recent years, we have witnessed remarkable growth in the use of social media, a set of digital applications based on Web 2.0 that enables individuals to create and share information online (Kaplan and Haenlin, 2010). For example, AddThis, a digital application that allows individuals to share information online, has approximately 1.2 billion users. Taking into consideration the strong positive relationship between word-of-mouth communication and product performance (Bass, 1969;

Godes and Mayzlin, 2004; Sheth, 1971), it is reasonable to assume that firms would be interested in communicating with groups of individuals who share product information.

There is also evidence that individuals use social media to search for product information. A recent survey conducted by the Pew Research Center (2011) observes that 92 percent of adults in the U.S. who frequent the Internet seek information online and 57 percent do so on a typical day. Lecinski, in his e-book ZMOT, suggests that consumers search for online reviews and information for a variety of product categories. Therefore, it is also reasonable to assume that firms would be interested in communicating with groups of individuals who seek product information. However, prior studies have not examined the use of multiple media by these two groups of individuals. This study makes an important contribution as it investigates the nature and combination of media used by these groups of individuals, and thus helps firms integrate their marketing communication activities to target and activate them.

In this study, we classify television, radio, and print media as traditional media and the Internet as digital media. Our theoretical framework is based on the premise that understanding individuals' motivations for searching or sharing information can help explain the nature and combination of media they consume. In the interest of completeness, we include in the framework other relevant explanatory variables that influence the use of a medium. A key contribution of this study is the modeling framework. While, traditional marketing models assume individuals make a single discrete choice i.e., consume only one medium, we use a multiple discrete-continuous choice extreme value (MDCEV) model, which accounts for the consumption of multiple media (or goods).

Results from the empirical analysis provide marketers and academics initial insights into how to leverage synergies across media. During prime time, individuals who seek product information online spend more time on the Internet and less time on traditional media such as television and radio. Interestingly, these individuals also spend more time reading magazines during prime time. This result lends broad support to our argument that the Internet is able to meet the information needs of individuals who actively seek product information online more effectively than traditional media. However, individuals who use social media to share product information consume more television and Internet during prime time. This is again in line with the theory that this group of individuals not only has a greater need for social interaction but also a higher involvement with a product and its commercials, resulting in greater consumption of traditional and digital media. These results have important implications for marketing managers as they craft their media plans and communication strategies.

The rest of the study is organized as follows. We develop and propose our theoretical framework in section 2. In the research design in section 3, we describe the data and the estimation methodology. We describe the results in section 4 and conclude with a discussion on the implications, limitations and areas for future research.

2. Theoretical Framework

2.1 Information Seeking and Use of Multiple Media

The need for information is a primary motivation for an individual to use a medium (McQuail, 1983). Recent studies (e.g., Ko, Cho and Roberts, 2005; Webster, 2009) suggest that traditional and digital media differ in their abilities to meet individuals' information needs. While traditional media can offer choice in content (e.g., television for entertainment, news, or sports; magazines for home projects, parenting, or recreation), individuals have to choose from the limited options available to them. On the other hand, the Internet can provide discrete or specific information

that individuals are searching for and hence, can meet their information needs more effectively than traditional media. We therefore hypothesize that individuals who frequently seek product information online spend more time on digital media and less time on traditional media. Here, it is important to note that we account for other motivations that influence the use of a medium, such as need for relaxation, in the empirical analysis.

Hypothesis 1: The greater the extent to which individuals use social media to seek product information, greater is the time they spend on digital media and lesser is the time they spend on traditional media.

2.2 Information Sharing and Use of Multiple Media

Dichter (1966) observes that motivations to share product information fall broadly into four overlapping categories: self-involvement, other-involvement, product-involvement, and message-involvement. There is broad consensus among scholars that involvement is an individual-specific motivational state of arousal evoked by a certain stimulus such as a message source (Laczniak, Muehling and Grossbart, 1989; Mitchell, 1981). Dichter defines product-involvement as the pressure that builds up in an individual when he/she feels strongly about the product, and message-involvement as discussions stimulated by commercials, advertisements, and public relations messages. He also defines self-involvement as the gratification of emotional needs of the individual and other-involvement as the need to give something to the receiver. Self-involvement and other-involvement are important elements of social interaction (Turner, 1988). Other scholars (Engel, Blackwell, and Miniard, 1993; Sundaram, Mitra, and Webster, 1998) too have examined the motivations for sharing information and their findings largely overlap with Dichter's observations.

Studies examining the use of digital media have found that the need for social interaction influences use of the Internet (Ko et al., 2005; Stafford, Stafford, and Schdake, 2004). Studies have also found that greater product-involvement and information sharing is associated with greater search effort (Andrews, Durvasula and Akhter, 1990; Bloch, Sherrell, and Ridgway, 1986). Consistent with our earlier arguments, the digital medium can effectively meet the information needs of these individuals. We therefore expect that individuals who use social media to share product information spend more time on digital media.

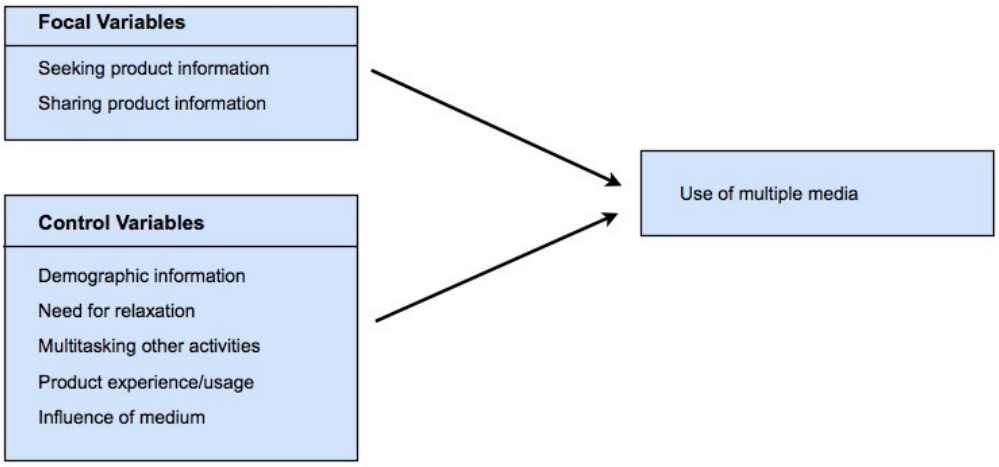
Interestingly, studies that examine the use of traditional media have found similar results. For instance, studies have found that the need for social interaction has a positive effect on the use of traditional media such as television (e.g., Rubin, 1983). Individuals who are more involved with a product are more likely to read magazines that feature that product (Bloch,1982). Individuals who share product information online often view and respond to commercials and advertisements that appear on traditional and digital media (Corcoran, 2009; Hanna, Rohm, and Crittenden, 2011).

Based on these findings, we therefore hypothesize that individuals who use social media to share information consume both digital media and traditional media.

Hypothesis 2: The greater the extent to which individuals use social media to share product information, greater is the time they spend on both digital media and traditional media.

The theoretical framework consisting of the focal variables described and the control variables that we describe below is presented in Figure 1.

Figure 1. Theoretical Framework.



2.3 Other Determinants of Use of Multiple Media

We also include in the framework relevant individual- and medium-specific characteristics that influence the use of a medium. Regarding individual-specific determinants, studies have found that demographics influence the nature of media consumed. For instance, younger individuals spend more time on television and Internet media (Rideout, Foehr, and Roberts, 2010). According to Dennis, Kinney, and Hung (1999), women are more sensitive to non-verbal cues (e.g., visual) than men. According to the U.S. Department of Commerce (2011), computer ownership varies significantly depending on income levels. Studies also suggest that use of a medium varies depending on the presence of children in the household (Roberts 2000). Age, gender, income levels, and the presence of children under the age of 18 in the household are therefore included in the framework as factors that influence the use of a medium.

Previous studies that explain the use of a medium following the "uses and gratifications" approach (McQuail, 1983), find a positive relationship between need for relaxation and use of traditional media (e.g., Rubin, 1983). A similar relationship has been found between the need for relaxation and use of digital media (e.g., Stafford, Stafford, and Schkade, 2004). We therefore account for whether individuals spend their leisure time on television, radio, print, and the Internet and evaluate the combination of media they consume. Studies suggest that some individuals have an inherent need to carry out multiple activities (Kaufman and Lane, 1997; Kaufman, Lane, and Lindquist, 1991; Turner et al., 2006). Therefore, we include in the framework individuals' involvement in other activities while consuming media. We also include experience with new technologies in the framework since studies have found that experience with a certain medium affects its usage (e.g., King and Weidong, 1997).

To account for medium-specific characteristics, we include the influence of a medium (Block et al., 2009) in the framework. Previous work in the communication literature suggests that characteristics of a medium, such as its richness in providing cues (Daft and Lengel, 1986), influence the use of a medium. Since we lack information on media richness, we account for medium-specific characteristics in our estimation methodology. Specifically, we estimate intercepts for each medium to account for characteristics specific to a medium.

3. Research Design

3.1 Estimation Methodology

Most estimation methodologies focus on the performance outcome of one good or item e.g., subject chooses either television or print. However, we often observe that individuals choose one or more alternatives[1] that are imperfect substitutes for one another. Examples of such multiple choice situations that have been studied so far include grocery purchases (Kim et al., 2002), individual activity participation and time-use (Bhat, 2005; Srinivasan and Bhat, 2006; Pinjari et al., 2009; Habib and Miller, 2009), household expenditure allocation patterns (Ferdous et al., 2008), household travel expenditures (Rajagopalan and Srinivasan, 2008), and household vehicle ownership and usage (Fang, 2008; Bhat et al., 2009).

Other than the study by Kim et al., all of the studies mentioned above use the MDCEV estimation methodology) or its variations. As Bhat et al., (2009) explain, the MDCEV approach has certain key advantages. First, it captures important features of choice making, including the diminishing feature nature of marginal utility with increasing consumption. Second, it has a closed-form consumption probability expression thus avoiding the use of computationally expensive simulation methods. In the event that all decision makers make only a single choice, the MDCEV simplifies to the familiar multinomial logit (MNL) model.

With respect to this study, the MDCEV approach is consistent with the theoretical framework. For instance, a key contribution of this study is that different segments choose and allocate time to multiple media to meet their needs given time constraints. If the results from the analysis suggest that each consumer segment chooses only one medium of its choice, a simple MNL model would suffice. However, as we explain in detail later, we find that our focal consumer segments use multiple media and more interestingly, allocate time to different combinations of media to meet their needs. Next, an important factor that affects choice of multiple media in our theoretical framework is that media differ from each other in their abilities to satiate the needs of individuals. For instance, the Internet can meet an individual's information needs faster than television as it can provide discrete pieces of information. The MDCEV model can estimate the satiating capabilities of different media and validate this assumption of the theoretical framework. We, therefore, believe that the MDCEV is a suitable estimation approach for this study.

3.2 Data

The Media Behavior and Influence (MBI) is a syndicated online study of American adult (18+) consumers that is conducted twice a year by BIGinsight of Columbus, Ohio. It uses a double opt-in methodology and is balanced to meet demographic criteria established by the U.S. Census. The study has been conducted continuously since 2002, and is used by a variety of well-known commercial marketing organizations. For the purpose of this study, we use the survey conducted in October 2010, a wave in which 23,237 individuals initially participated. However, some subjects did not report information on age (n=1,050), income (n=5,286), and presence of children under the age of 18 in the household (n=2,337). The final sample for the analysis was therefore reduced to 16,785 individuals.

3.2.1 Dependent Variable – Multiple Media Consumption

Subjects in the survey report consumption of four different media for seven dayparts. The seven dayparts are 1 a.m. to 6 a.m., 6 a.m. to 10 a.m., 10 a.m. to

[1] The methodology used in this study can also handle situations where none of the alternatives, i.e., the outside good, is chosen.

noon, noon to 4:30 p.m., 4:30 p.m. to 7:30 p.m., 7:30 p.m. to 11 p.m., and 11 p.m. to 1 a.m. For this study, we focus on a single daypart and consider two important factors while deciding which daypart to use for the analysis. First, advertising expenditure data from SRDS[2] suggest that advertising on television during prime time is more expensive than advertising during other dayparts. Second, studies suggest that media availability is an important factor that influences media consumption (Webster, 2009). It is reasonable to assume that individuals can access all four media during prime time, i.e., from 7:30 p.m. to 11 p.m. We therefore focus on prime time and use individuals' self-reported consumption of television, radio, Internet, and print media on weekdays between 7:30 p.m. and 11 p.m. (i.e., 210 minutes). Print in this study refers to magazines and not newspapers. We exclude media such as newspapers and mobile phones from this study because the sample of individuals who report using such media during prime time is very small.

The dependent variable in our model is the time that an individual spends with each medium. Individuals report in the survey if they use a certain medium (1=Yes/0=No) during prime time and we use this information to calculate the time an individual spends with each medium. We calculate the consumption time in minutes for medium *k* as 210 * *c*, where *c* = 1 if *k* is consumed, and *c* = 0 otherwise. The model allows for the possibility that none of the four media (i.e., the outside good) is consumed. In our data, 9 percent of individuals (n=1,575) do not report consumption of any of the four media during prime time. For such individuals, the time spent on the outside good is measured as 210 minutes. We also allocated a small time of five minutes as the time spent on the outside good for all individuals who consumed at least one medium. Robustness checks, which include increasing the time spent on the outside good to 15 minutes for such individuals, did not reveal any significant change in the results. The descriptive statistics relating to consumption of the four media are in Table 1. Television has the highest average consumption during prime time, followed by the Internet, print, and radio.

Table 1. Descriptive Statistics for Media Consumption During Prime Time.

	Television Minutes	Radio Minutes	Print Minutes	Internet Minutes
Mean	192.77	26.67	56.29	127.55
Std. Deviation	87.68	69.93	93.02	102.55
Correlation Matrix				
	1	**2**	**3**	**4**
Television Minutes	1			
Radio Minutes	-0.05			
Print Minutes	0.15	0.04	1	
Internet Minutes	0.15	0.13	0.12	1

3.2.2 Independent Variables

Here, we explain the operationalization of the explanatory variables used in our framework. We first explain how we develop measures for the focal variables i.e., seeking product information and sharing product information online. We then describe the measures for individual characteristics and media influence. The descriptive statistics for these variables are in Table 2.

[2] SRDS is a division of Kantar Media that collects, curates, and delivers data to media buyers.

Table 2. Descriptive Statistics for Explanatory Variables.

Variable	Type	Mean	Standard Deviation
Age of the individual	Continuous categorical	43.79	14.21
Gender	(1=Male/0=Female)	0.51	0.50
Children <18 yrs. in household	Categorical (1=Yes/0=No)	0.69	1.06
Medium income	Categorical (1=$35,000<Income<$75,000, 0=No)	0.37	0.48
High income	Categorical (1=Income>$75,000, 0=No)	0.35	0.48
Leisure time: watch TV	Categorical (1=Yes/0=No)	0.03	0.99
Leisure time: listen to music		0.06	1.00
Leisure time: read newspapers/ magazines		0.00	1.00
Leisure time: online activities		0.01	1.00
Regular desktop user	Categorical (1=Yes/0=No)	0.87	0.33
Regular tablet user		0.06	0.23
Regular smartphone user		0.29	0.46
Regular portable user		0.64	0.48
Search product information online	Categorical (1=Yes/0=No)	0.45	0.50
Share product information online		0.20	0.40

Using Social Media to Seek and Share Product Information

In the survey, individuals were asked, "How often do you research products online before purchasing them in person or in a store?" Subjects had to choose from one of three options – regularly, occasionally, and never. We use a dummy variable to capture the extent to which individuals seek product information online. We encoded individuals who reported that they regularly searched for product information as one, and those who reported occasionally or never as zero. Around 45 percent of the sample reported that they regularly searched for information.

Subjects were also asked how they communicate with others about a service, product, or brand. Individuals who reported using online communities/social media were encoded as one, and zero if they did not use social media to share information. Descriptive statistics suggest that 20 percent of the respondents reported using social media to communicate information on products, services, and brands.

Control Variables

The average age of the sample is 44 years. Males constitute 51 percent of the sample. Individuals with an income of more than $75,000 were considered as high-income individuals and those with an income between $35,000 and $75,000 were considered as medium-income individuals. Summary statistics suggest that 35 percent of the sample was in the high-income category and 37

percent in the medium-income category. Sixty-nine percent of households have children under the age of 18.

Since individuals also use media to fulfill their relaxation needs, we include relevant measures from the survey in the model. Subjects were asked, "What are some of your favorite ways of spending your free, leisure time?" While the survey provides subjects 37 different options (Yes=1, No=0), we include in the model options relating to "watch TV," "listen to music," and 'read magazines/ newspapers" to account for the effect of need for relaxation on the use of television, radio, and print media respectively. To control for use of the Internet, we use the average of responses to "surf the Internet," "email/instant messaging/ blogging," and "online communities/social media." While 77 percent of the sample indicated they watch television during leisure time, 64 percent reported listening to the radio, 48 percent reported reading magazines/newspapers, and 44 percent indicated online activities. Studies suggest that some individuals have an inherent need to carry out multiple activities. Subjects were asked whether they engaged in 18 different activities when using media. Results from a factor analysis suggest that while consuming media, multitasking individuals carry out household, social, and outdoor-related activities. The results of the factor analysis with the reliability scores are in Table 3.

Table 3. Factor Analysis of Multitasking Activities.

	1	2	3
Factor 1: Multitasking media with housework (α = 0.82)			
Do Laundry	0.781		
Do Housework	0.775		
Cook	0.719		
Make Grocery List	0.611		
Do Personal Care	0.581		
Eat	0.569		
Drive/Commute	0.446	0.440	
Care for Children	0.342		
Factor 2: Multitasking media with socializing (α = 0.68)			
Text Messaging on Cell Phone			0.722
Study			0.597
Shop			0.594
Talk on Phone	0.439		0.590
Entertain		0.401	0.458
Factor 3: Multitasking media with outdoor activities (α =0.61)			
Work on Car		0.695	
Do Yard Work		0.694	
Exercise/Play Sports		0.485	
Do a Hobby/Craft		0.472	
Work/Job		0.452	0.310

Note: Loadings <0.3 were removed.

Multiple Media by Social Media Users (cont'd.)

We include self-reported measures of regular usage of four devices: desktop, tablet (iPad), smartphones, and portables to account for degree of expertise with digital devices. Eighty-seven percent of the subjects reported themselves as regular desktop users. Only 5 percent of the sample self-identified as regular tablet (specifically iPad) users. Approximately 29 percent of the sample self-identified as regular smartphone users (i.e., iPhone, Droid, Blackberry, or Palm) and 62 percent as regular portable users (i.e., netbook and/or laptop).

Consumers report the influence of 24 different forms of communication on their purchase decisions in nine product categories: electronics, apparel, grocery, home improvement, automobiles, medicines, telecom services, dining, and financial services. We use these responses to compute measures for influence of traditional media and influence of digital media in the following way. First, we compute the average influence that each communication form has on an individual's purchase decision across the nine product categories. We then conduct a factor analysis of the average influence of these 24 forms of communication (see Table 4). Three factors have an eigenvalue greater than 1 and explain 53 percent of the variance. Two of the three factors indicate the influence of traditional media and digital media. The third factor, interestingly, reveals the influence of marketing communication. Reliability scores (i.e., alpha) for all three factors are high.

Table 4. Factor Analysis of Influence of Communication Forms.

	1	2	3
Factor 1: Influence of digital media (α=0.91)			
Video on Cellphone	0.864		
Text Messaging	0.818		
Mobile Devices	0.812		
Instant Messaging	0.809		
Online Video Game	0.799		
Web Radio	0.773		
Satellite Radio	0.734		
Blogging	0.685		
Social Media	0.604		
Outdoor Billboards	0.499		0.422
Yellow Pages	0.468		
Factor 2: Influence of Marketing Communication (α=0.91)			
Coupons		0.718	
Direct Mail		0.702	
Advertising Inserts		0.642	
Newspaper		0.588	
Email Advertising		0.587	
In-store Promotion		0.582	0.319
Read Article on Product		0.523	0.403
Magazines		0.518	0.382
Word of Mouth		0.511	0.388
Internet Advertising	0.316	0.416	0.371
Factor 3: Influence of Linear Communication (α=0.76)			
Cable			0.784
Television/Broadcast			0.780
Radio	0.308	0.327	0.514
Product Placement	0.332		0.477

Note: Loadings <0.3 were removed.

4. Results

We introduced variables in a step-wise manner in the model to ensure there are no multicollinearity issues. We also included other demographic information such as ethnicity and political ideology; however, these variables were consistently insignificant and we removed them from the framework. In addition to the main effects, we also examined various interaction effects. However, these effects were insignificant and did little to improve model fit. We therefore present only the main effects in our results. The significant estimates are in bold in Table 5.

Table 5. Estimates from MDCEV Model.

	Television Minutes		Radio Minutes		Print Minutes		Internet Minutes	
	Coeff.	t-stat.	Coeff	t-stat.	Coeff	t-stat.	Coeff	t-stat.
Intercept	-1.858	-22.00	**-3.524**	**-22.52**	**-3.876**	**-32.31**	**-2.101**	**-23.78**
Age	**0.013**	**12.14**	**-0.015**	**-7.11**	**0.0005**	**2.82**	**-0.003**	**-2.98**
Gender	0.017	0.63	**0.327**	**6.21**	**-0.163**	**-4.15**	**0.210**	**7.17**
Children <18 yrs. in household	**-0.022**	**-1.72**	**-0.054**	**-2.37**	**-0.058**	**-3.23**	**-0.052**	**-4.00**
Medium-income	**0.178**	**5.48**	**-0.235**	**-4.07**	**0.370**	**7.44**	-0.008	-0.23
High-income	**0.205**	**5.98**	**-0.335**	**-5.31**	**0.610**	**12.02**	0.012	0.32
Need for relaxation: watch TV	**0.576**	**17.58**	**-0.235**	**-4.03**	**-0.090**	**-2.05**	-0.039	-1.17
Need for relaxation: listen to music	**-0.057**	**-2.04**	**0.521**	**8.77**	-0.056	-1.41	-0.038	-1.25
Need for relaxation: read print	0.043	1.59	0.027	0.52	**1.070**	**26.74**	**-0.111**	**-3.88**
Need for relaxation: online activities	-0.002	-0.05	**0.191**	**2.46**	**-0.348**	**-6.06**	**0.666**	**15.31**
Regular desktop user	**0.173**	**4.42**	**0.212**	**2.83**	**0.166**	**2.92**	0.054	1.35
Regular tablet user	**-0.899**	**-12.93**	0.109	1.16	**-0.282**	**-3.13**	**-0.325**	**-5.12**
Regular smartphone user	-0.013	-0.41	0.030	0.53	**0.113**	**2.71**	**0.079**	**2.52**
Regular portable user	0.039	1.39	-0.014	-0.26	**0.081**	**2.06**	**0.241**	**8.03**
Multitasking with household activities	**0.070**	**5.05**	**0.121**	**4.93**	**0.071**	**3.74**	**0.127**	**8.92**
Multitasking with social activities	**0.152**	**10.42**	**0.051**	**1.82**	**0.127**	**6.13**	**0.090**	**5.86**
Multitasking with outdoor activities	**0.041**	**3.30**	**0.145**	**6.82**	**0.110**	**6.67**	**0.052**	**4.02**
Influenced by digital media	**-0.51**	**-10.03**	**0.102**	**5.80**	**-0.041**	**-2.18**	**-0.049**	**-3.61**
Influenced by market-ing communications	**0.076**	**5.71**	**0.079**	**3.23**	**0.139**	**8.00**	**0.073**	**5.26**
Influenced by traditional media	**0.061**	**5.06**	**0.062**	**2.89**	**0.064**	**3.92**	**0.035**	**2.76**
Seeking product information	**-0.048**	**-1.82**	**-0.083**	**-1.69**	**0.069**	**1.90**	**0.094**	**3.42**
Sharing product information	**0.019**	**4.35**	0.005	0.52	-0.001	-0.23	**0.034**	**7.04**

Note: t-statistics in bold have p-value <0.1.

We first discuss the results of the focal variables. According to H1, individuals who regularly seek product information online spend more time on digital media and less time on traditional media. The coefficients for time on television and radio are

Multiple Media (cont'd.)

negative and significant, while the coefficient for digital media is positive and significant as expected. The results suggest that individuals who seek product information online spend significantly more time on the Internet and significantly less time on traditional media such as television and radio. However, the coefficient for time on print is also positive and significant suggesting that these individuals also spend significantly more time on print media. The results therefore partially support H1.

According to H2, individuals who use social media to share product information spend more time on digital and traditional media. The coefficients for television and the Internet are positive and significant as expected. The results suggest that these individuals consume significantly more television and Internet during prime time, lending support to H2. We summarize the results for the focal variables in Table 6. In the discussion section, we explain the implications of these results for firms who wish to communicate with these groups of individuals.

Table 6. Summary of Results for Focal Variables.

Use Social Media For	Traditional Medium Used	Digital Medium Used
Information Seeking	Print	Internet
Information Sharing	Television	Internet

Regarding demographic variables, we observe that older individuals spend significantly more time on television and print, and spend less time on the Internet and radio than younger individuals. Men spend significantly more time than women on the radio and Internet during prime time. However, women spend more time than men reading magazines. These results are consistent with findings from previous studies and lend face validity to our study.

Households with children less than 18 years of age spend significantly less time than other households on the radio and Internet during prime time. Medium- and high-income individuals consume similar bundles of media and spend significantly more time on television and print than low-income individuals. However, low-income individuals consume more radio than high- or medium-income individuals.

As expected, individuals who report spending time with a certain medium to fulfill their relaxation needs spend significantly more time with that medium during prime time. More importantly, the results also reveal interesting insights on their use of multiple media. Individuals who spend their leisure time watching television spend significantly less time on radio and print. Individuals who spend their leisure time listening to music spend less time watching television during prime time. Individuals who spend their leisure time reading magazines and newspapers spend less time on the Internet. Finally, individuals who spend their leisure time on online activities spend more time on the radio and less time on print.

Individuals, irrespective of whether they are engaged in household, social, or outdoor activities, spend significantly more time on all four media during prime time. Regular users of different electronic devices differ considerably in the combination of media that they consume. While desktop users spend significantly more time on television, radio, and print media, tablet (i.e., iPad) users spend significantly less time on television, print, and the Internet during prime time. Users of portables (i.e., laptops and netbooks) and smartphones spend significantly more time on the print and Internet media during prime time.

Individuals who are influenced by digital media consume significantly less Internet, print and television during prime time. However, these individuals spend more time listening to the radio during prime time. Individuals whose purchase

decisions are influenced by traditional media consume significantly more traditional media and digital media during prime time. We also find similar results for individuals who are influenced by marketing communication.

Satiation Parameters: This is perhaps the first study that compares the satiation abilities of different media. The satiation parameters (αk) for the four media (Table 7) are significantly different, suggesting that the four media are not perfect substitutes. The satiation parameter for radio is the highest, signifying that radio has the smallest satiation effect of the four media. In other words, individuals need to spend less time with radio than other media before they are satiated. The satiation parameter for television is the smallest signifying that individuals need to spend more time with television than other media to be satiated. This result is a possible explanation for why television is still the dominant medium during prime time.

Table 7. Satiation Parameters (αk).

Medium	Parameter (αk)	p-value
Television	0.654	0.00
Radio	0.916	0.00
Print	0.883	0.00
Internet	0.787	0.00

5. Discussion

The main objective of this study is to understand the nature and combination of media consumed by different groups of individuals and help marketers integrate their marketing activities across media. Here, we examine the combination of media consumed by two important target segments: individuals who use social media to seek information and those who use social media to share product information. In the interest of completeness, we include other relevant variables that influence the use of a medium. Relevant data from a survey consisting of a nationally representative sample are used for the empirical analysis. Contrary to traditional estimation methodologies that allow only use of only one medium (or good), the approach used in this study allows individuals to use multiple media.

The study reveals interesting differences in media consumption between individuals who use social media to seek product information and those who use social media to share product information. For instance, individuals who use social media to seek product information spend more time on the Internet and print media and less time with other traditional media such as television and radio. The result lends support to the theory that the Internet is able to meet the information needs of individuals more effectively than traditional media such as television and radio. The use of the print medium during prime time by this group of individuals is an interesting outcome and provides marketers insights on which combination of media to use to communicate with individuals who seek information. Firms can conduct integrated marketing campaigns on the Internet and print media during prime time to target individuals who seek product information. It also seems that allocating resources to television and radio to target information seekers during prime time is inefficient and perhaps ineffective.

The results also suggest that individuals who use social media to share product information consume both television and Internet during prime time. This result lends support to the theory that individuals who share information have higher self-involvement and other-involvement. Consequently, they have a higher need for social interaction and hence consume more television (Rubin, 1983) and Internet

(Ko et al., 2005). Furthermore, this result has important implications for marketers because individuals who share information about certain products are deeply involved with these products and their commercials. Firms can use this information to conduct integrated marketing campaigns on television and Internet during prime time to communicate with this group of individuals. Evidence suggests that firms are allocating more resources to social media (eMarketer, 2011). This study cautions that allocating resources to social media alone would not be as effective as allocating resources to both traditional and digital media to activate this group of individuals.

Since the study incorporates frequently used segmentation variables pertaining to demographics, product usage, and behavior, the results provide useful information to firms on which combination of media to use to target specific groups of individuals. Individuals who are influenced by marketing communication and traditional media spend significantly more time with all four media. This is an interesting and informative result for firms as they work to integrate their marketing communications across different media. Similar results are obtained for individuals who perform other activities while consuming media. These results not only help explain the pervasive use of cross-platform media, but also provide information on the different groups of individuals using multiple media.

6. Limitations and Future Research

The study is not without its limitations, suggesting opportunities for future research. The study uses self-reported measures of media consumption and uses nominal variables to compute the time spent with a medium. This study examines multiple media consumption from a static point of view and does not take dynamics into account. In addition to the medium, it would be useful for firms to understand how to allocate resources to different programming content (e.g., entertainment – reality shows, dramas, etc.; sports – football, Olympics, etc.). However, it is important to note that each of these limitations has implications for data collection. While we have attempted to alleviate concerns on unobserved heterogeneity by including demographic and behavioral variables in the analysis, a mixed effects model is better suited to handle such issues. However, this entails increasing the complexity of the model and we leave this for future research.

The study also suffers from a few other limitations. We only examine media consumption during prime time. It is quite possible that the combination of media consumed differs for other dayparts e.g., the radio may be the dominant medium in the morning while driving to work. Further analysis is needed to understand the media consumption behavior of individuals whose purchase decisions are influenced by digital media during other dayparts. In this study, we did not include the phone as a medium because few subjects in the survey report using this medium during prime time. However, mobile usage continues to grow and the effectiveness of mobile marketing efforts needs to be examined. The satiation effects of the four media provide useful insights on the ability of each medium to satisfy the needs of the user, however, more work is needed to understand the factors that influence satiation. We leave it to future research to examine these interesting and important issues.

Looking beyond, the study is an ideal building block for future research on multiple media consumption. With access to granular information on media consumption, future work can help us understand if individuals consume multiple media simultaneously (Schultz, Block, and Raman, 2009), or whether they frequently switch between media, or if they spend time with a medium until they are satiated and then switch to the next medium. It is possible that an individual

exhibits all of these behaviors over the duration of a day or even a daypart. These actions have implications for how individuals process, store, and recall information as they access information from multiple channels and repositories. Consequently, they have a bearing on firms' communication and media planning activities. Research that investigates these issues will truly help us further our understanding of multiple media consumption.

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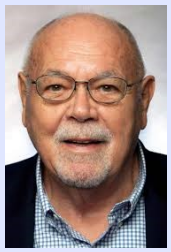

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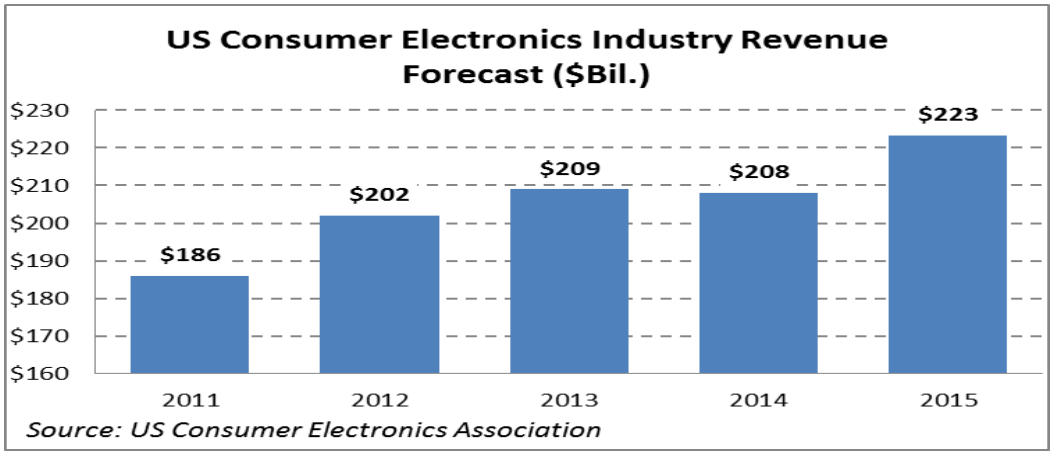
Top-Ten Retail Tech Trends for 2015

By Deborah Weinswig, CPA, Head of Global Retail Research & Intelligence, Li & Fung/ FBIC Global

Technology is back yet again this year, even though it never really left us. If you agree with the view expressed by Intel CEO Brian Krzanich at the recent Consumer Electronics Show (CES), we are at the beginning of a multi-year technology boom akin to the early days of the Internet (see Chart 1). Retailers are increasingly turning to technology to improve the online experience for digital natives and also to enrich the in-store experience for those customers who prefer to shop in brick-and-mortar stores. Here, we discuss 10 technologies likely to have a major impact this year.

Chart 1. U.S. Consumer Electronics Industry Revenue Forecast.

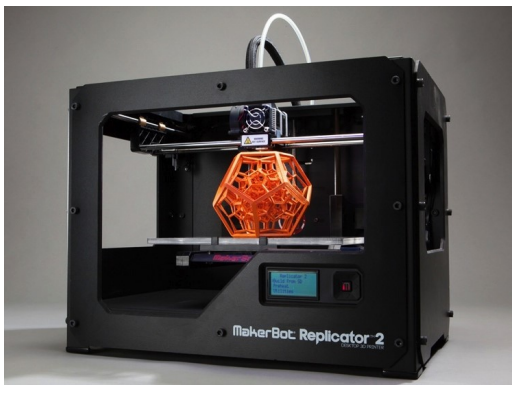


The Internet of Things (IoT)

After years of being mostly vaporware, the IoT is becoming real and offering connected gadgets and appliances that promise to improve our lives. While the first wave of gadgets was comprised of Internet-connected coffee makers and nanny-cams, the latest wave provides a suite of devices to monitor and control the environment in our homes and apartments by controlling lighting, temperature, safety, and security. Retailers can look forward to a flood of Internet-connected gadgets for the home, garden, and health and fitness, as well as apps and home-system platforms that will enable them to work with each other.

3D Printing

3D printing offers both opportunities and challenges for retailers. On the opportunity side, prices for 3D printers continue to come down, making them increasingly affordable, and the development of tools for the input, design and creation of 3D objects continues to advance. Retailers can use 3D printers to design custom objects for product demonstrations and displays. However, as prices decrease, 3D printing is increasingly becoming a viable option for the consumer, leading to a make-or-buy decision. Retailers will need to stay ahead of the 3D printing wave by offering innovative products with attractive designs and materials.



Source: 3dprinterplans.info

Wearable Everything

A Tory Burch bracelet is designed to hold a FitBit One fitness tracker. Source: frugalbeautiful.com

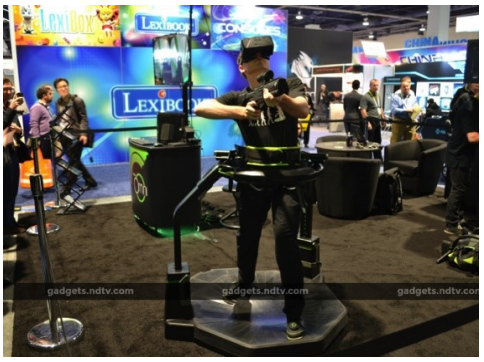
We have been wearing technology for years in the form of digital watches, headphones, and virtual-reality goggles – we just didn't have a name for it. The steady pace of miniaturization in electronics and advances in wireless communications technology have put miniature computers on our wrists, in our ears and on our bodies. The first generation of wearables took the form of fitness bands and trackers, and the next iteration of products will include clothing with the electronics and intelligence built in. Retail apparel vendors will increasingly also become vendors of intelligent, connected garments.

Digital Health

Another take on wearable technology is digital health. The same technology breakthroughs that are enabling wearable smartwatches and clothing are also enabling wearable sensors and devices for health and medical uses. These sensors and devices can monitor our heart rate, blood pressure, and glucose levels, and possibly save lives in the process. At CES, we saw a promising connected hearing aid that enables the wearer to take phone calls and listen to the TV directly through the device.

Augmented and Virtual Reality (AR/VR)

Virtual reality is moving past the thick goggles worn by avid gamers, and retailers are rapidly finding applications for AR/VR technology. Ikea, for example, has used augmented reality to give customers the ability to use their smartphones or tablets to imagine how a given piece of furniture would look in their home or apartment. Home Depot is also using augmented reality to visualize doors, faucets, and furniture.



Source: Twitter.com/ndtv

Magic Mirror on the Wall

Moving beyond just visualizing household items, apparel and beauty retailers have created "magic mirrors" that let the consumer visualize herself (or himself) wearing various apparel or beauty products. At CES, Panasonic demonstrated a mirror that made cosmetic recommendations, and eBay collaborated with designer Rebecca Minkoff to demonstrate a magic fitting-room mirror that seamlessly blends the online and in-store shopping experiences using radio-frequency identification technology. Minkoff recently opened stores in New York and San Francisco that feature the touch screen mirrors, which can be used to request additional items or ask for assistance.

Source: designboom.com

Retail Tech Trends (cont'd.)

Send in the Drones

In late 2013, Amazon announced that it was exploring using drones for package delivery and created a new mini-industry. Since then, we've seen an explosion of consumer drones with cameras offering spectacular aerial photography, global positioning systems (GPS) for returning home, and even outfitted for drone-to-drone warfare. This year, we expect drones to become a significant consumer product category, as development on them continues to make them increasingly lighter and smarter. (Editor's note: Just prior to publication, the Federal Aviation Administration issued proposed rules governing the use of small, commercial drones that would, if adopted, seriously limit their use.)

The Army of Startups

With retailers increasingly turning to technology, the inventions of startups are becoming increasingly important. Moreover, many of these companies have honed their business plans with the help of angel and venture investors and are focusing their resources on just one narrow problem that retailers face. Stay tuned for increasing retailer-startup interaction.

Cybersecurity and Personal Data Security

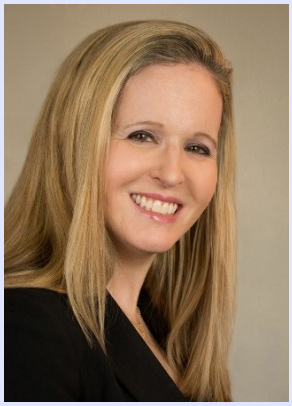
The list of notorious hacks on servers continues to get longer, with movie studios now joining some of the country's leading retailers. At the same time, convenient new electronic payment networks such as Apple Pay are gaining in popularity, and consumers are rightfully concerned that their payment information (as well as other personal information) is stored safely and securely. Retailers will be devoting a much bigger portion of their IT budgets this year to technologies that can reduce cyber-crime risks.

Machine Learning and Interconnectedness

Machine learning is becoming increasingly sophisticated, and computers are adopting techniques from biology, such as neural nets that "learn" through trial and error. When this knowledge is stored in the cloud, it forms a bank of shared information accessible by all machines. With more and more objects – and on the horizon, garments – containing sensors that take measurements and create data, this data will need to be stored in a place from which everyone can benefit. This digital interaction will affect consumer behavior and expectations, as science fiction becomes reality.

Summary

There are many exciting technologies arising in the gaming and electronics universes that are inevitably making their way into retailing. Many of them – wearable health and fitness devices, in particular – promise to make our lives safer, healthier, and more fun, though there is an explosion of data coming from these brave new devices that must be stored securely and prevented from falling into the wrong hands.



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PRI's research regarding "Retail Attitudes and Adoption Trends of Multi-Channel and Omni-Channel Marketing," was 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.

In PRI's Research Article, "Digital Signage's Role as Part of a Multimodal Approach to Deliver Emergency Messaging on Campus," the rapid adoption of digital signage networks as an important communication tool on university campuses is examined. 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.

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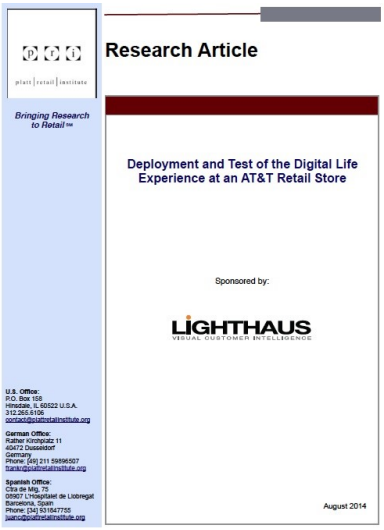
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