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Journal of Retail Analytics

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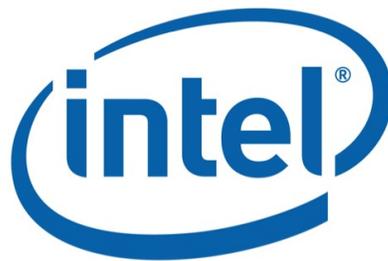


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TOUCH SYSTEMS



Industry Snapshot:

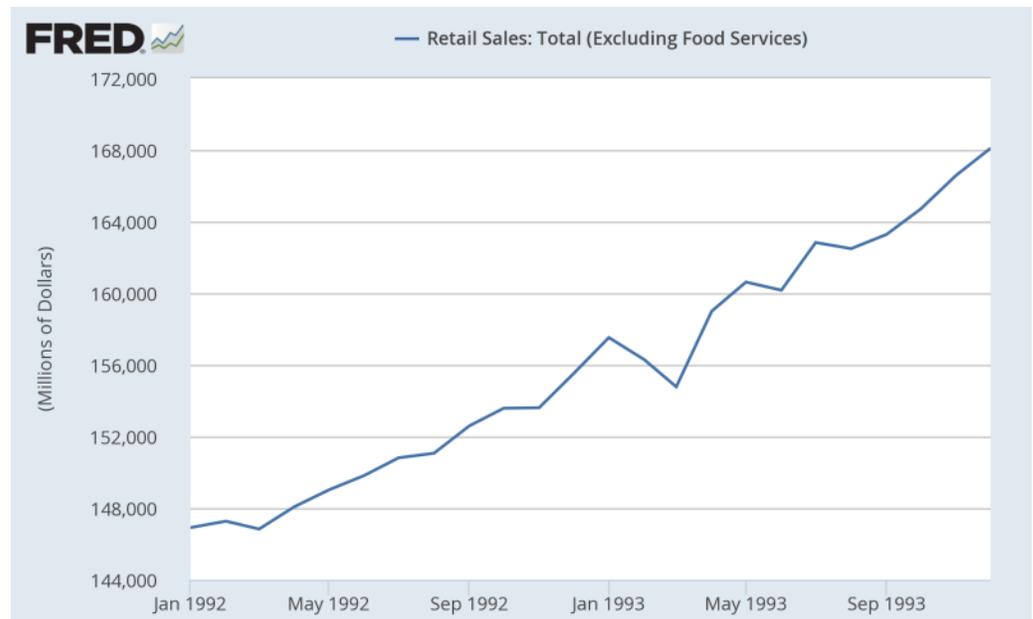
Retail Sector Performance Charts

The following table and charts provide a snapshot of retail sales performance during the third quarter of 2015.

Retail Spending (%)	Oct	Sep	Aug	Oct Y/Y	2014	2013	2012
Total Retail Sales & Food Services	0.1	-0.0	0.0	1.8	3.9	3.7	5.0
Excluding Autos	0.2	-0.4	-0.1	0.8	3.1	2.7	4.1
Non-Auto Less Gasoline & Building Supplies	0.2	0.1	0.2	3.2	3.3	2.7	3.6
Retail Sales	-0.0	0.0	-0.0	1.1	3.7	3.8	4.9

Source: Haver Analytics

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



Source: Federal Reserve Bank of St. Louis



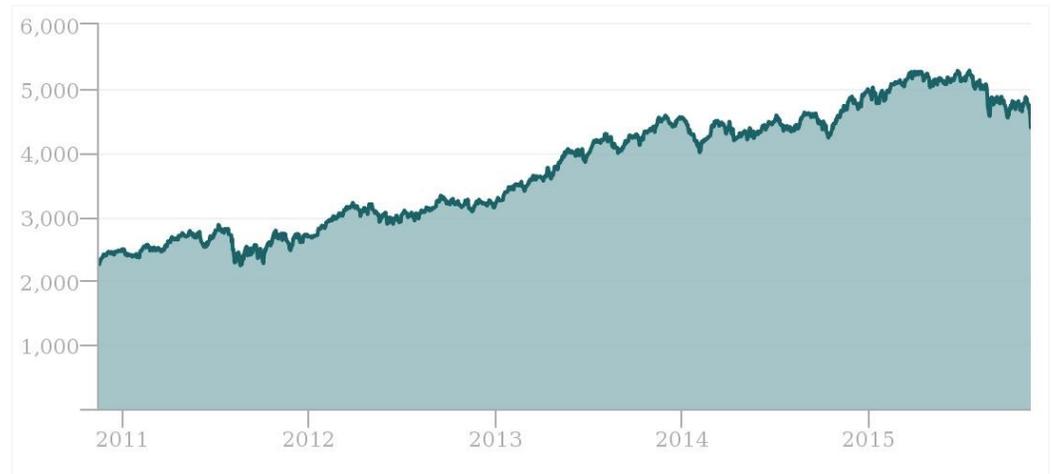
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Chart 2. Retail Trade: Nonstore Retailers.



Source: Federal Reserve Bank of St. Louis

Chart 3. S&P Retail Select Industry Index.



Source: McGraw Hill Financial



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Electric Vehicle Charging Stations and Digital Signage: Charging More than Just Vehicles

By Todd Mares, Director of Emerging Technologies, Peerless-AV

Digital signage can be used in a variety of applications and often plays a key role in effective communication. Common applications for digital signage use include retail, hospitality, transportation, education, corporate, and entertainment venues. However, digital signage has been expanding in use, with solutions appearing in new venues such as charging stations for electric vehicles.

The need for public charging stations is rapidly growing in tandem with the demand for plug-in electric vehicles (PEVs). Digital signage is also growing in tandem with technological advances and changes in communication styles and processes. The use of such a unique combination of technologies opens many doors for beneficial returns to all parties involved, including content providers, advertisers, manufacturers, and end users.



The installation of charging stations (whether at a premium retail center, grocery store, parking garage, entertainment venue, or airport) has various benefits including:

- Brand building, customer attraction, and retention.
- Electric vehicle (EV) charging stations give businesses a unique way to differentiate themselves from competitors, and enhance and promote a positive, environmentally friendly brand image.
- Digital or static advertising opportunities on signage are possible.
- Content options are nearly endless. Each time EV owners charge their vehicles, it becomes an opportunity to advertise to those drivers.
- Advertising offers the charging station company the ability to offer the charging station for free, while generating money directly from advertising.
- Reduce environmental footprint and save energy.



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Background Info on Electric Vehicles

Electric vehicles (EVs) have been around for more than 100 years, with the first “small-scale electric cars” invented in 1828. It wasn’t until the 1890s that the first successful EV was created, which sparked an interest in both consumers and automakers.

Historically, EVs were not widely adopted by consumers due to their short driving time and long charging sessions compared to conventional gasoline or diesel cars. However, today that is no longer the case with battery charging time being of little concern for a plug-in electric vehicle (PEV) owner.

The demand for PEVs is growing rapidly and with that demand also comes the need for charging stations.

According to Portland General Electric (PGE), about one-third of the country’s greenhouse gas emissions come from transportation, and 60 percent of that is from vehicle use. Charging stations significantly aid in reducing carbon emissions and the more public stations installed, the more interested non-EV drivers will be to join the movement.

Taking Charging Stations to a New Level

Digital displays enclosed within an outdoor charging station kiosk offer many benefits to the charging station manufacturer, signage manufacturer, advertisers, and end users as compared to traditional charging stations equipped with only backlit static signage.

The benefit is that the digital signage messaging options are limitless. When enclosed in a charging station kiosk, the medium can be used to generate revenue through advertising, provide wayfinding and personalized guest services, provide corporate information for employees, and more. A constant stream of fresh content can achieve high quality communications to the specific target audience.

Charging stations are the perfect place to advertise to each driver who pulls up to charge. A recent study found that 63 percent of adults report that digital signage advertising catches their attention more than any other method of advertising, and 44 percent said they paid attention to digital signage advertising more than any other method of advertising.¹ Whether the advertisement is for a partner EV company, stores inside the premium retail center, or for the charging station company itself, digital signage offers more advertisement space and potential for increased revenue.

The true takeaway is that the opportunities for functionality and benefits for all parties involved are truly limitless. Digital signage can certainly be used to generate revenue through advertising, but moreover, supports what retailers can and should offer shoppers in terms of a personalized guest service experience, from the moment they step out of their cars. From customized wayfinding, to exclusive promo codes displayed on digital signage enclosed in charging stations, companies can create a 360-degree brand experience, allowing customers to interact with brands anywhere, at any time. A constant stream of fresh content, on-demand is the expectation of customers and it is through digital signage that retailers can truly accomplish this.

Kiosk and Display Considerations

Before investing in an outdoor kiosk and display for a charging station, there are a number of factors to consider. These are related to the kiosk and display.



Charging stations equipped with only backlit static signage.



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¹ “Digital Out-of-Home Media Awareness & Attitude Study.” Rich Media Technologies. See-Saw Networks, Inc., 2007. Web. 15 Sept. 2015. <<http://www.richmediatechnologies.com/uploads/articles/pdf/Outdoor%20Effectivness.pdf>>

PEV Fundamentals

The two types of PEVs are EVs and plug-in hybrid electric vehicles (PHEVs).

All EVs, also referred to as battery-electric vehicles, run solely on batteries, which store electrical energy that powers the motor and produces no tailpipe emissions. Plugging the vehicle into an electric power source charges the batteries. Also, EVs have the ability to charge by regenerative braking, which means the electric drive motors are used as generators and return the kinetic energy normally lost when braking to electricity for the electric supply system to run off of.

Plug-in hybrid electric vehicles (PHEVs), also referred to as extended range electric vehicles, differ from EVs as they use both batteries and fuel. The batteries power the electric motor and the fuel powers the internal combustion engine. These types of vehicles are similar to EVs because they can be plugged into an electrical source. However, the battery life for PHEVs is normally shorter.

Kiosk considerations:

- Weather ratings are one of the most important considerations when choosing a kiosk. The best way to determine a kiosk's ability to withstand weather conditions is by referring to the Ingress Protection (IP) rating. The IP code classifies and rates the degree of protection provided against the ingress of dust and water. An IP68 rating is the standard recommendation for this type of application.
- Ability to update content and monitor the status of the kiosk remotely via Wi-Fi or landlines.
- Configurable email alarms notifying the charging station company of any issues with the kiosk, e.g. power is down, an internal component has failed, a door is open, a concerning enclosure temperature, etc.
- Circulation fans to ensure proper operating temperature for the internal electronics.
- Lockable doors for security and kill switches outside the enclosure to shut off power during an emergency.
- Ability to integrate a display, media players, speakers, and more to provide a complete self-service experience for the consumers charging their PEVs.
- Pre-assembled design to simplify on-the-job installation, eliminating the need for on-site engineers for assembly, thereby reducing installation costs.

Outdoor display considerations:

- Ability to withstand harsh outdoor elements, season changes, and extreme temperature differentials (see previous explanation of IP ratings).
- Daylight-readable, full HD, 1080p resolution for a bright, crisp picture when installed in outdoor environments.
- An LED backlight system, which ensures better uniformity of illumination and creates less heat.
- Designed for direct solar loads and temperatures ranging from -40°F to 140°F.
- Fully sealed design to prevent condensation from forming inside the display glass.
- Cooling, as air conditioners will need upkeep, require maintenance, and consume significant power.
- Ambient light sensors to automatically and gradually adjust a screen's brightness at different times, based on surrounding conditions.
- Breakage-resistant safety glass to contend with vandalism.

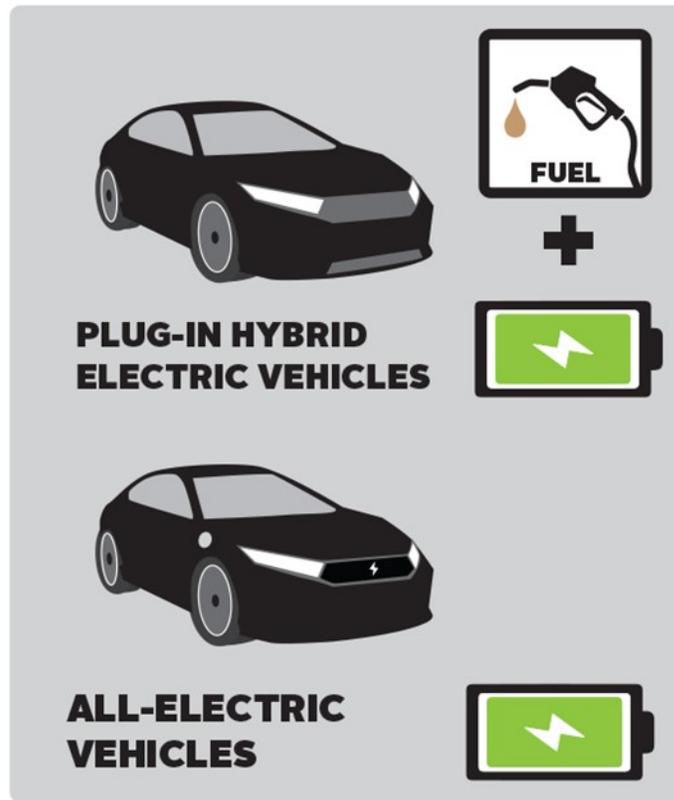
The Solution

Peerless-AV® helped create custom Volta charging stations. The station design includes an outdoor daylight-readable display, a backlit poster box, a media player, a power meter, and a cellular modem. The cellular modem allows for real time content updates and power consumption records. One of the largest challenges retailers face is getting customers' attention. An interactive display helps retailers connect with customers in a meaningful way.



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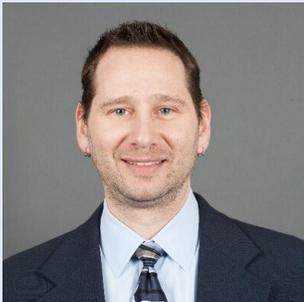
Charging Fundamentals



EV charging stations can be installed just about anywhere electricity can be run – homes, apartment complexes, corporate campuses, college campuses, shopping centers, parking garages, etc. But before installing and using a charging station, it's important to understand the basics of the equipment.

There are different types of electric vehicle supply equipment based on communication capabilities and the time it takes to actually charge the vehicle itself. This equipment takes electrical energy from the electricity source it is plugged into, such as the electrical outlets at a shopping center parking garage. In order to guarantee that a safe flow of

electricity is continuously supplied to the various brands of PEVs charging, the supply equipment has to be able to communicate effectively with the PEV.



Todd Mares is the Director of Emerging Technologies at Peerless-AV.

Peerless-AV Company Profile

PRI welcomes Peerless-AV as a member firm and is pleased to provide this profile to *Journal* readers.

Peerless-AV, a Peerless Industries, Inc. company, is a leading designer, manufacturer, and distributor of audiovisual solutions. From its award-winning mounts and wireless audio systems to indoor/outdoor kiosks and the industry's first fully sealed outdoor displays, Peerless-AV aims to Get It Right™ by fulfilling both integrators' needs for ease of installation and service, and end users' dreams in residential and commercial applications.

Based in Aurora, IL, Peerless-AV manufactures over 3,600 products that serve original equipment manufacturers, commercial integrators, and consumer retailers in 22 vertical markets through direct sales representatives and authorized distribution.



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In-Store Digital Media You Can Hang Your Hat On: Nebraska Furniture Mart of Texas

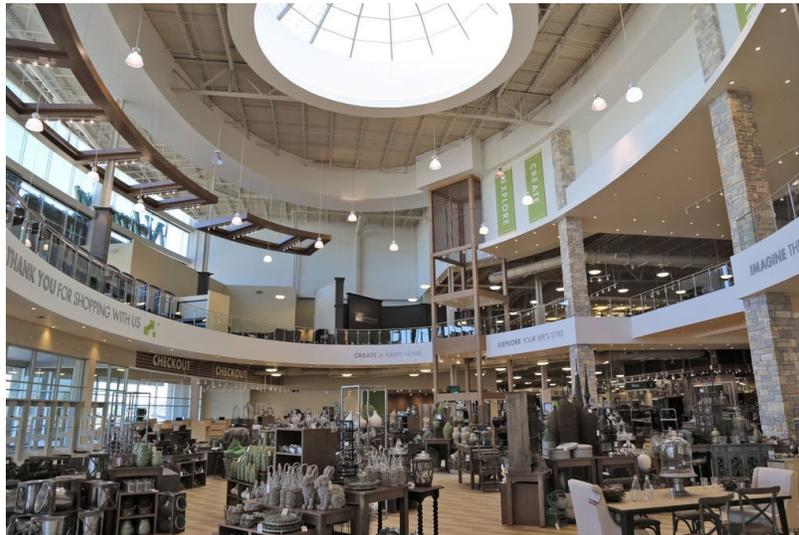
By Matt Schmitt, President and Chief Innovation and Strategy Officer, Reflect



Family owned and operated since 1937, Nebraska Furniture Mart is a brand rich in heritage. Nebraska Furniture Mart has always focused on unmatched prices, top-notch customer service, and memorable guest experiences. The Texas store encompasses a 560,000-square-foot retail showroom and a 1.3 million-square-foot distribution center. It is projected to host eight to 10 million visitors annually. The store serves as an anchor to the Grandscape development, a 400+ acre mixed-use development that will provide a unique destination for retail, entertainment, dining, and attractions.

When the owners decided to open a new store in Texas, they were aware of the challenges of introducing a brand rich in heritage to a new market, as well as the challenges that came along with the immense scope of the project. The challenge was to use in-store digital media technologies to design an intimate and personal-

ized shopping experience for a large-format store.



Nebraska Furniture Mart of Texas provides an ideal environment for in-store digital brand media. With 14 unique digital experiences, and multiple instances of each experience across the vast showroom, the digitally enabled, one-of-a-kind customer journey starts immediately when guests arrive. The digital media provides Nebraska Furniture Mart control over the management, distribution, and presentation of HD media content and applications across its entire digital media network.

able, one-of-a-kind customer journey starts immediately when guests arrive. The digital media provides Nebraska Furniture Mart control over the management, distribution, and presentation of HD media content and applications across its entire digital media network.



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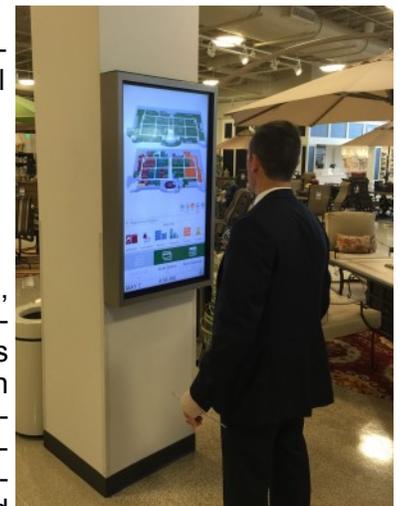


Interactive Digital Experiences

- **Custom Wayfinding** – Five interactive kiosks located at the main, west garage, and east Grandscape entrances provide guests with store information, department locations, and optimal routes, all presented on a touchable 3D map of the store.

Reflect WayFinder provided Nebraska Furniture Mart with a turnkey, customizable digital mapping solution. Reflect worked with Nebraska Furniture Mart to determine the right type of product to fit its objectives, and then constructed the appropriate application and content to deliver a solution.

- **Custom Retail Application** – Seventeen, 42-inch touch displays are located on columns throughout the first and second floors of the store. This interactive application helps customers locate specific items of inventory in the store, no matter how frequently products are moved. Notorious for remerchandising daily to keep its stores fresh and current on home furnishing trends, Nebraska Furniture Mart needed a way to ensure its customers could find what they were looking for when they arrived. Each item of inventory has its location available real-time, and is searchable and locatable by the application. The custom touch application is tied to the retailer's back-end systems to ensure information shown to the customer is always automatically updated as inventory moves throughout the store.



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- **Interactive Branded Applications** – The 14 touch-sensitive displays in the Kitchen Aid shop and appliance area of the megastore provide customers with brand/product specific information, specs, and availability.
- **Credit & Registry Kiosks** – There are 20 gift registry and credit application kiosks dispersed on all floors to provide guests with the convenience of using them when and where they are needed.



Experiential Digital

Nebraska Furniture Mart wanted to make sure its store delivered a Texas-sized branded experience that would resonate with its customers.

- **3 x 3 Video Wall** – A 3x3 video wall was installed on a custom wall-mount system located at the back of the store. The video wall is used to display Texas-related content and imagery that spans across all nine screens.

- **Mosaic Video Wall** – For the curved wall at the Grandscape entrance of the store, a custom-designed video wall, consisting of 27 22-inch display tiles, was arranged to enhance the architectural appeal of the curvature of the wall.



- **4K Display** – An 84-inch 4K display is located in the TV/Sound Department of the store. This display broadcasts compelling, emotion-evoking 4K content.

Passive Digital Experiences:

- **TV Sales Wall** – Furniture Mart has a large inventory of televisions on display, showcasing four different content playlists throughout the department.

- **Passive Video Walls** – The store has three video walls that allow for different content on each screen or to have one stream of content shown across all screens.



- **Sales Floor Passive Displays** – Located high on structural columns at two locations in the store, the left and right side of the central entrance, are two 55-inch displays. Each pair of displays is mounted on two adjoining sides of the column and can show distinct content on each or synchronized content that moves from one display to the other.



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- **Tree House** – Two 40-inch displays are mounted back to back on the trunk of the treehouse located in the children's area of the store. An experience geared toward children, the displays are equipped with video capture and directional sound that can be used to broadcast storewide messages or emergency alerts.



With its digital signage focus, Nebraska Furniture Mart placed importance on enhancing the experience throughout the customer's journey. The results of the retailer's efforts include:

- Customer experience elements designed on an immense scale.
- Messaging and content to communicate brand heritage and values, timely information, and relevance to the in-store experience.
- Digital wayfinding and store directories.
- Interactive experiences allowing customers to find departments and products quickly and easily.
- Visual merchandising elements redressed daily to create an ever-changing and fresh store experience.



Matt Schmitt is the President and Chief Innovation and Strategy Officer at Reflect.

Learn more about the Nebraska Furniture Mart project in an upcoming webinar

WHEN: December 9, 2015 from 2-3 pm EST.

WHO: Lee Summers, Marketing Technology Manager for Nebraska Furniture Mart and Matt Schmitt, President and Chief Innovation and Strategy Officer, Reflect.

WHAT: In this webinar, presented by Digital Signage Connection, Summers and Schmitt will discuss the challenges associated with introducing a brand rich in heritage to a new market and the opportunities that come with using in-store digital media to create an intimate and personalized shopping experience.

Click [here](#) to register for the webinar.



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Multi-Screen Environments and Social Media Triggers: Uses and Gratifications

By Dr. Jeffry Babb, Associate Professor and Ginsler Professor of Computer Information Systems; Dr. De'Arno De'Armond, Associate Professor and Edwards Professor of Financial Planning; Dr. Emily Kinsky, Assistant Professor of Mass Communication; Dr. Kristina Drumheller, Associate Professor of Communication Studies; and Dr. R. Nicholas Gerlich, Hickman Professor of Marketing, West Texas A&M University

With more mobile devices in the world than people, brands are directing much of their efforts toward reaching consumers on those devices. Brands such as Dove, Volkswagen, Unilever, Mercedes, and ESPN have been using interactive out-of-home media to spread their messages and prompt connections and conversation with consumers. From near field communications offering consumers discounts via their smartphones as they approach a particular sign, to questions prompting commuters to tweet about what makes them feel beautiful, brands are trying to engage consumers in new ways.

The growth of mobile has changed many people's media habits. People often use mobile devices while watching television and while waiting for something else to happen, whether that's sitting in a doctor's office waiting to be called or standing on a platform waiting for a subway. With that multi-screen use in mind, brands are including hashtags in the lower third of the screen of intended attention – beckoning consumers with a Shazam logo for more information, or directing them to follow their Facebook pages – in hopes of tying into a consumer's focus on their “other” screen.

The growth of mobile has changed many people's media habits.

These “first screen” messages come into consumers' homes on their television screens, but they're also found in a multitude of environments on digital signage. Social media prompts are often included on digital signage and sometimes they are the entire focus of the sign. Social media boards displaying real-time tweets and check-ins have become popular at conferences, hotels, and sporting events. People were encouraged to take selfies with JetBlue's digital signage for its Curaçao campaign and post them on Instagram with the hashtag #JetBlueGetaways, while Microsoft stores encouraged people to post their pictures on the store's 150-foot video wall. This is all an extension of the earliest signage/mobile interactions evident in QR codes, which were (and remain) successful in markets like Japan.

The term “second screen” has been used for mobile devices that people use in partnership with their television, but many are coming to see the mobile screen as primary rather than secondary. Though the mobile device may be the primary tool used each day, it is often something in people's environments that prompts them to use a particular app, look something up, join, follow or like a company at that moment. The question of which screen has primacy, and in which context, is worth exploration.

Uses and Gratifications

As organizations move toward more digital signage use, understanding the gratifications obtained can help targeting efforts. Uses and gratifications theory argues that individuals actively choose the media they wish to use based on perceived gratifications sought and obtained. Early media uses and gratifications research focused on television use specifically identifying uses such as information seeking, relaxation, and entertainment. Research has since looked at motivations for other media usage such as reading materials, Internet, parasocial interactions, mobile apps, and social networking sites (SNS).



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Being socially connected to others is a primary gratification for users of SNS, which greatly facilitates word-of-mouth marketing. Thus, it is no surprise that advertisers seek ways to enhance their message through SNS use. As digital signage use increases, identifying motivations can enhance viewer interaction with SNS triggers. Researchers have already noted that organizations using SNS should make sure the interactions are fast, responsive, and feel like a private interaction – in short, they should feel like a natural extension of the context and settings.

This “first” and “second” screen dichotomy is the subject of ongoing research at West Texas A&M University, which seeks to understand more about television and digital signage audiences engaging with SNS triggers and what motivates them to do so. This particular project focuses on three primary questions:

1. How often do viewers interact with (a) social media triggers on television and (b) social media triggers on digital signage?
2. Which social media platforms are people most likely to (a) interact with on TV and (b) interact with on digital signage?
3. What gratifications are obtained by users of (a) social media, (b) television, and (c) the Internet?

How We Arrived at our Findings: Method and Measures

In order to examine the phenomena of interest, we administered an online survey to a nationwide convenience sample using Amazon’s Mechanical Turk service. Amazon’s Mechanical Turk is a crowdsourcing service and marketplace allowing individuals, researchers, and businesses to request/coordinate the use of other humans to perform tasks that are not fully suited to computer automation. There is a growing segment of researchers who find this service provides access to a wider range of respondents. The survey was administered in June 2015 over a multi-week period.

Data and Results

Our survey yielded a total of 526 usable responses, with 55 percent of respondents male and 45 percent female. Forty-eight percent of respondents reported marital status as “married or living with a partner,” 28 percent reported “single not in a relationship,” and 24 percent reported “single in a relationship.” More than two-thirds (68 percent) of respondents were born between 1982 and 1995, with an average age of approximately 33 years. Sixty-four percent of the respondents identified as “White, not Hispanic or Asian,” 19 percent “Asian-Indian,” 5 percent “Black or African American,” 4 percent “Asian-East or Southeast,” 4 percent “Hispanic or Latino,” 1 percent “Native American or Alaskan Native,” and 1 percent “Other.” Although it would be desirable to have obtained a more even distribution in gender, race, and age, these may be byproducts of the use of Amazon’s Mechanical Turk. Thus, this sample is a convenience sample, as responders decide to which human intelligence tasks they will respond. There were no mechanisms in place to dynamically filter responses based on any demographic distributions.

The Nature of Social Media Triggers via Television

Respondents were asked several questions relating to their use of television. Seventeen percent of respondents reported watching 11 hours of television per week. Additionally, 21 percent watch 1-5 hours of television per week, 28 percent observe 6-10 hours per week, and 34 percent watch greater than 12 hours per week. Eighty-one percent of respondents have utilized a second screen during a television show. Here, we refer to the device as a “second screen” as, presumably, the context of use is during the viewing of the television. Fifty-four percent of respondents indicated they have used a digital device to engage with social media tags on



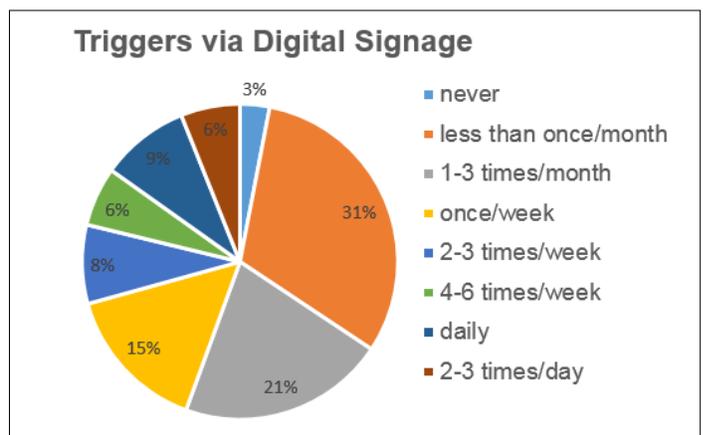
television (hashtags, Shazam icons, etc.). When asked which SNS the respondent is most likely to interact with on television via a second screen, the most likely in order are as follows:

1. Facebook.
2. Twitter hashtags and live tweeting.
3. Shazam.
4. Text/call to vote.
5. Pinterest.
6. Instagram.

When asked how often respondents find themselves interacting with text on the television screen, actually going to websites, social media sites, or using apps advertised on the television screen, 22 percent reported less than once a month, 26 percent 1-3 times per month, 17 percent once a week, 14 percent 2-3 times per week, 7 percent 4-6 times per week, 9 percent daily, 2 percent 2-3 times per day, and 2 percent reported more than 4 times per day .

The Nature of Social Media Triggers via Digital Signage

Respondents were asked several questions relating to their awareness and use of digital signage. Sixty-eight percent of respondents indicated they have been exposed to digital signage and received additional questions providing further insight of digital signage engagement. When asked if the respondent has ever used a digital device to engage with digital signage, 39



percent answered “yes,” with 61 percent answering “no.” Of those engaged with digital signage, when asked which SNS the respondent is most likely to interact with on digital signs, the most likely in order (highest to lowest) are as follows:

1. Facebook.
2. Twitter hashtags and live tweeting.
3. Shazam.
4. Text/call to vote.
5. Pinterest.
6. Instagram.

When asked how often respondents find themselves interacting with text on digital signage, actually going to websites, social media sites, and/or using apps advertised on the screen, 3 percent responded never, 31 percent reported less than once a month, 21 percent 1-3 times per month, 15 percent once a week, 8 percent 2-3 times per week, 6 percent 4-6 times per week, 9 percent daily, 6 percent 2-3 times per day, and 1 percent reported more than 4 times per day. While a minority, there is a considerable number of respondents who do react to, and interact with, social media prompts from digital signage.



Uses and Gratifications, Social Media, the Internet, and Television

Respondents were asked questions regarding uses and gratifications of social media, the Internet, and television. When asked how often the respondent uses

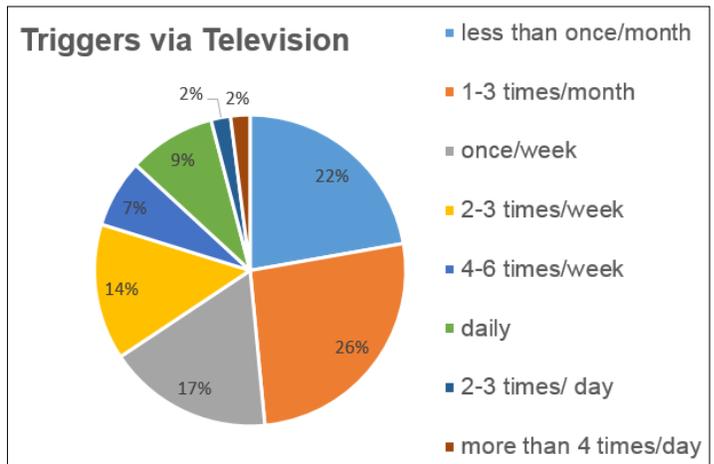
social media platforms daily, the following, in order of most utilized, was noted: Facebook (25 percent), Reddit (20 percent), Twitter (19 percent), Instagram (12 percent), Pinterest (8 percent), Snapchat (7 percent), Tumblr (5 percent), Flickr (4 percent), and Shazam (3 percent). Respondents were asked to indicate how well nine provided statements explain their reasoning for

choosing to use SNS on a scale of “not at all” to “exactly.” Ranked according to means, participants primarily used SNS because it entertains them and because they can learn new things. They also acknowledged the use of SNS as a way to pass time, express themselves freely, talk to others about social media trends, and because it is exciting. The remaining responses with lesser agreement acknowledged the motivations for using SNS are to relax and simultaneously feel less lonely, yet get away from things or people.

Respondents were also asked to choose an answer that best describes how they relate to 13 statements regarding use of the Internet on a scale of “strongly disagree” to “agree strongly.” Ranked according to means, respondents agreed that primary motivations include that it is a good way to do research, it is enjoyable, and it is beneficial for learning about useful things and unknown things. Respondents also acknowledged the Internet’s convenience and entertainment in surfing the Internet. To a lesser degree, respondents viewed the ease of use, access, and usefulness in passing time as reasons for using the Internet. The ability to see what others have to say, freely express themselves, and meet people with similar interests were viewed as somewhat motivational for using the Internet.

As with other media, respondents were asked to indicate how well nine provided statements explain their reasoning for choosing to watch television on a scale of “not at all” to “exactly.” Ranked according to means, participants affirmed that their primary gratifications from television viewing included entertainment, relaxation, and to pass time. Other motivations included to learn things, because it is exciting, and to get away from people or things. Lesser motivations included watching television to feel less lonely and to more freely express views.

Additionally, respondents were asked to identify from seven provided uses to what extent the following behaviors were observed while watching television. On a scale of “never” to “very often,” ranked according to means, participants most commonly said they tended to eat, use social media, and text while watching television. With lesser frequency, participants prepared food, talked about something other than the program, took care of someone, and read. Respondents were also asked to rate their level of agreement of the importance of five statements from “strongly disagree,” to “strongly agree.” Ranked based on means, participants felt it was most important to finish a program from start to finish; record their favorite program; and plan their evening around their favorite program. Of lesser importance was watching the clock to make sure they did not miss their favorite program and interacting with a program through social media or the Internet.





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Discussion/Key Takeaways

Of interest is that the “Internet,” which presumably means browsing websites on the Web, is associated mostly with learning and discovery (both pursuits of activity); whereas, social media (which are largely delivered through websites or apps) are associated with entertainment and passing time, primarily. Of course, participants also ranked SNS highly as a source of information. Further, as would be expected, viewing television programs is rated highly for its linear and passive qualities (entertainment and passing time). What is remarkable is that all three seem to have a formative intersection, where those wishing to “co-task” (not exactly multi-task, but to engage in a deeper, yet related, activity of interaction and discovery), can do so with social media providing a “glue” that relates the interests between the producer and consumer. Some have suggested that such arrangements lead to co-creation between the producer and consumer in that this “first” and “second” screen mix can be utilized for co-creative experiences.

The respondents also give the impression that television is not a passé medium for them. To the contrary, other than the understandable parallel activity of eating (viz. TV dinners) or the preparation for eating while watching television, it is notable that maintaining contact with others (text and SNS) has emerged as a prominent parallel activity. Whether a desktop, laptop, or mobile device is used, it seems commonplace for respondents to have access to two screens. Whether for SNS or Web browsing use, respondents were most comfortable mixing the passive gratifications and uses of the television with the interactivity of what is (whether it is mobile or not) personal computing. To wit, once the novelty of mobility begins to wear off, we will realize that we are engaged in personal computing (albeit largely for communication). As such, personal computing remains a fruitful and interactive experience, particularly as the inter-networking of these computers is on the rise. Moreover, given the Internet of Things (IoT) phenomenon, wherever the consumer is, there too is their ability to engage in personal computing, and their ability to share and interact with other actors in the network (human and otherwise).

Although digital signage did not resonate with the majority of respondents, the fact that 39 percent reported interacting with digital signage, and some with great frequency, indicates the potential for engagement with digital signage as digital signage and the use of social media triggers on these signs gain in popularity. Lessons can be drawn from motivations for SNS use and television viewing as both have shaped the current social landscape. Although SNS are often visited while watching television, such interactions are not viewed as highly important, indicating that marketers must make greater effort to engage the viewer. Primary SNS use motivations were research and learning while being enjoyable. Providing viewers of digital signage with reasons to research new information while making it something enjoyable could increase interactions.

Concluding Remarks

Our overall work has set out to investigate how consumers interact with social media triggers in the context of television use and in the presence of digital signage. The sample largely falling within the Millennial Generation might explain the positive potential in digital signage as this generation continues to mature and make up the largest consumer base.

Although the results suggest that socializing or learning while watching television is a valid phenomenon worthy of further study, it also gives pause to reconsider a multi-screen environment and the cardinality of “first” and “second” in the relationship. As an increasing number of consumers are “cutting the cord” and discontinuing cable television subscriptions, and some cable providers (who moonlight as high-speed Internet Service Providers) are jumping in to accommodate this trend, it might be just and antiquated to call the “screen that can be shared with others”



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the television, and the “screen that is mine,” the phone or tablet. Both are mediums for content, communication, and computing. A future topology for computing, social network interactivity, and entertaining in the home may just consist of screens that are inter-networked and persistently connected to the Internet. Again, the distinction would most likely be whether the screen is large and meant to be shared, versus held in your hand and meant to be your personal device.

Lastly, although our sample reflected Millennials significantly, recent studies suggested that the subsequent generation (born in the last five to 15 years), are so entrenched in having computing (and subsequently connectivity to all networks, social or otherwise) in their hands and about their person that the promise of ubiquitous and pervasive computing is upon us. In a study of 800 parents and children conducted by Miner and Co., a majority of children in the study had their own tablet and preferred watching content on the device rather than the television. Given the screen, computer, and network topology discussed above, it is conceivable that “first” and “second” screen may blur to the point of indistinction. Again, the ability for marketers and producers to understand the context of entertainment and information use may provide the best means for future interactions via prompts within programming (hashtags and the like). If we are reduced to content, context, screens, and computing/networks, then words like “television, phone, and tablet” may be headed toward their obsolescence.

Uses and gratifications theory helps identify motives for using social media triggers as a means of utilizing an extant and dominant technology to co-opt an emergent (if not already dominant) technology in a synergistic manner to obtain media gratifications. Uses and gratifications is an appropriate perspective to take as the respondents to our survey corroborate that both mediums (mobile devices and screens – television or signage) are all appropriated in goal-seeking contexts. Although television seems to retain its passive nature, when enhanced with the interaction available with mobile personal computing, the usefulness and gratification of the television medium is extended. In one sitting, various needs are being met by both mediums. Respondents have indicated that, in the context of television usage, the mobile device is there as “something to do,” presumably, in-between the “good” parts. The next question to answer is, which are the “good” parts and why? If one were to guess who will best answer this question, it would be a safe bet to look to the upcoming generation: this “connected” generation not only grew up with the Internet, they grew up with pervasive and ubiquitous access to context-sensitive and rich mediated content at their leisure and discretion. To return to the recent Minor and Co. study of 800 parents and children, it is little wonder that the principle punishment for these children is to have their mobile device restricted; to be disconnected is to not exist at all.



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Retail Apps: Fearful Failure or Face of the Future?

By Martin Block, Executive Director, Retail Analytics Council and Professor, Integrated Marketing Communications department; and Don Schultz, Director, Retail Analytics Council and Professor (Emeritus-in-Service), Integrated Marketing Communications department, Northwestern University

Over the past few years, software application packages (better known as apps), which can be downloaded onto a desktop computer and/or mobile device, have been hailed as the new technology which will revolutionize the interface between buyers and sellers at all levels of retail commerce (Kalakota, et al, 1999). While there are multiple definitions and descriptions of these apps, for this paper, we confine our discussion to mobile retail apps, since they appear to be the application of choice for increasing numbers of consumers. Thus, the definition used in this paper is:

Mobile retailing or mobile channel initiatives are defined as processes and tools that enable brand/product marketing, search, order, and payment functions on the consumer's mobile phone or similar devices at retail locations or otherwise – consumer's home, office, or any other location (Aberdeen Group, 2010).

While this definition is somewhat restrictive, it does focus the following discussion on what the practical nature of apps might be, and separates that from some of the vendor and blogger hype that has dominated the discussion.

We first start with a view of fixed and mobile device growth over the past few years. Without these accessing tools, apps would be irrelevant. Since the focus of this paper is on mobile apps, how that area has grown over the past few years becomes quite important. That is followed by a discussion of the amount of time spent using various connected devices. Time seems to be the major factor that marketers believe drives the use and value of these apps. At least that is where they have placed their primary focus. We then turn to a specific discussion of consumer downloads of mobile retail apps in the U.S. We expand the discussion by providing a comparison of the usage of mobile apps in China with that in the U.S., and find that U.S. downloads are slowing. From that, we develop the argument that there is no real “global” marketplace for apps, but there will likely be a huge market for a number of locally and regionally developed apps. Finally, in terms of retail app usage in the U.S., there does not appear to be a correlation between retail app downloads and sales.

Growth of Mobile Devices and Retailer Apps

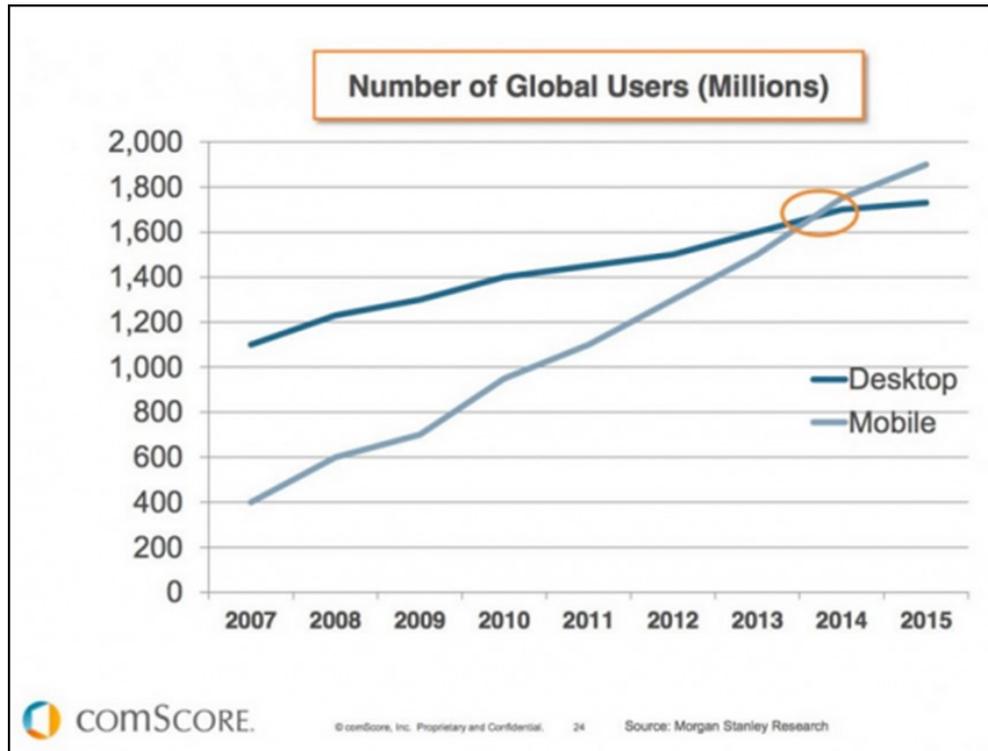
Retail mobile apps are clearly an outgrowth of the adoption of mobile computing. The rapid consumer take-up of devices such as iPhones, Androids, tablets and the like has created this ancillary demand for mobile apps. As this demand has increased, manufacturers of various mobile devices have continually enhanced the functionality of their products (Pralhad and Ramaswamy, 2012). That has resulted in improved and increased device capabilities, features, and functions, which have made mobile apps a more attractive product for consumers.

Historically, computing has gone through a number of phases. This started with huge mainframes which were downsized into servers (Somogyi and Galliers, 2012), which then evolved into desktop computers (Davis, 1977) some 50 years ago (Tomitspro.com, 2013). Desktops were the device of choice for both consumers and businesses for more than two decades. Today, however, mobile devices, in terms of consumer usage, overtook desktops in mid-2013. The trend seems to be



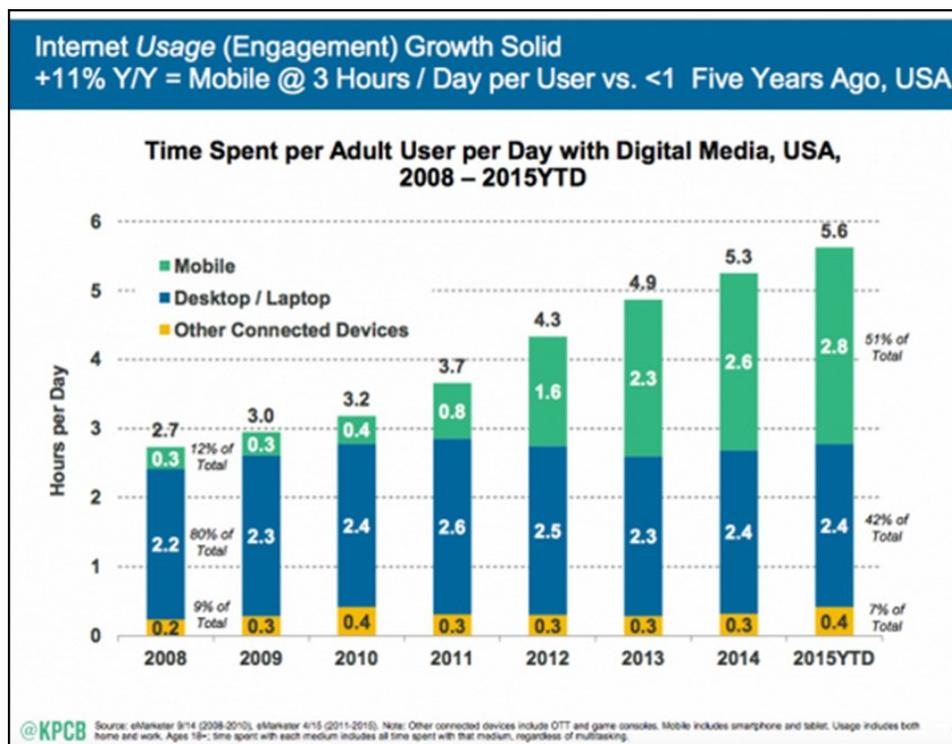
solidly in favor of mobile, as shown in Chart 1 below. Note in Chart 1 that it is not just the absolute number of mobile devices that is important; it is the growth trajectory which seems to offer so much promise.

Chart 1. Number of Global Users (millions).



Mobile device popularity has been confirmed not just by device acquisition, but also by the amount of consumer time spent with them (see Chart 2).

Chart 2. Internet Usage (Engagement) Growth.

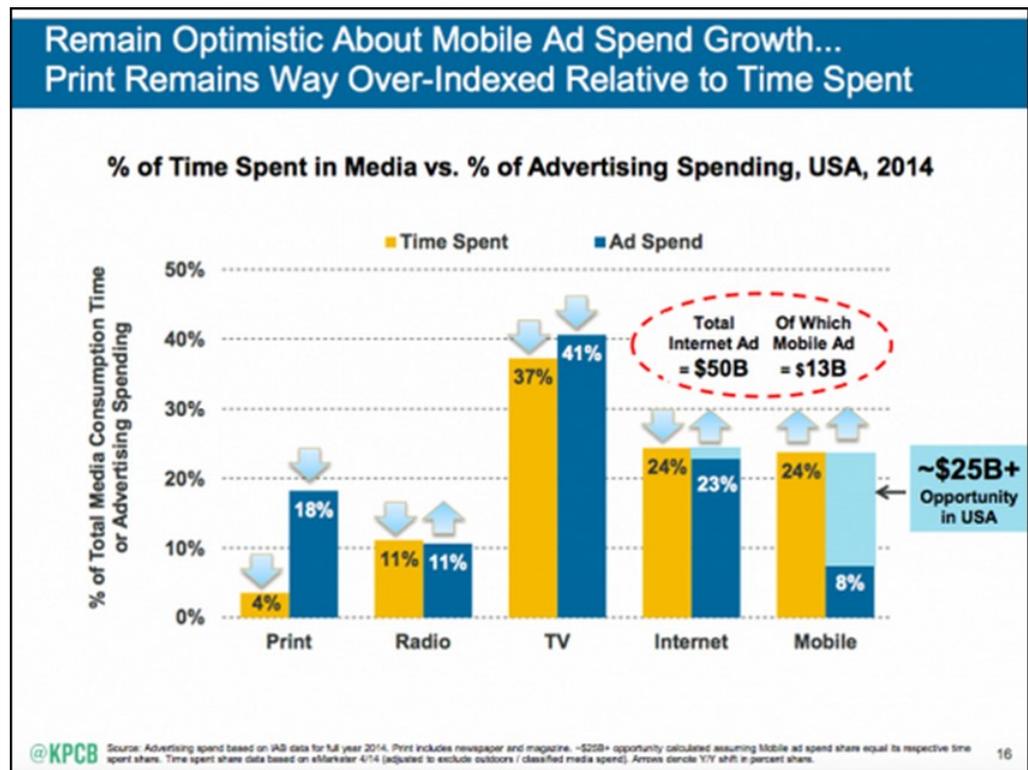


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As can be seen, since 2008, consumers have increasingly reallocated their time usage to mobile devices. For example in 2008, consumers spent only 0.3 hours per day on mobile devices compared to the 2.2 hours on desktops/laptops. By 2015, the total number of hours on all devices had grown from less than three hours per day in 2008 to an estimated five and one-half hours per day currently. Of that increased usage, mobile accounted for the greatest amount of time, i.e., 2.8 hours per day for mobile compared to 2.4 hours per day on desktops/laptops. Thus, mobile is now the leading mode of digital engagement, accounting for 51 percent of the total.

What has surprised many experts, however, is that advertiser investments in mobile advertising have lagged behind consumer time usage on those devices in the U.S. For example, Kleiner, Perkins, Caufield & Byers, (KPCB) a leading investment firm, argues that more marketer investments should be made in mobile advertising by marketing organizations. Their argument is illustrated in Chart 3.

Chart 3. Mobile Ad Spend.

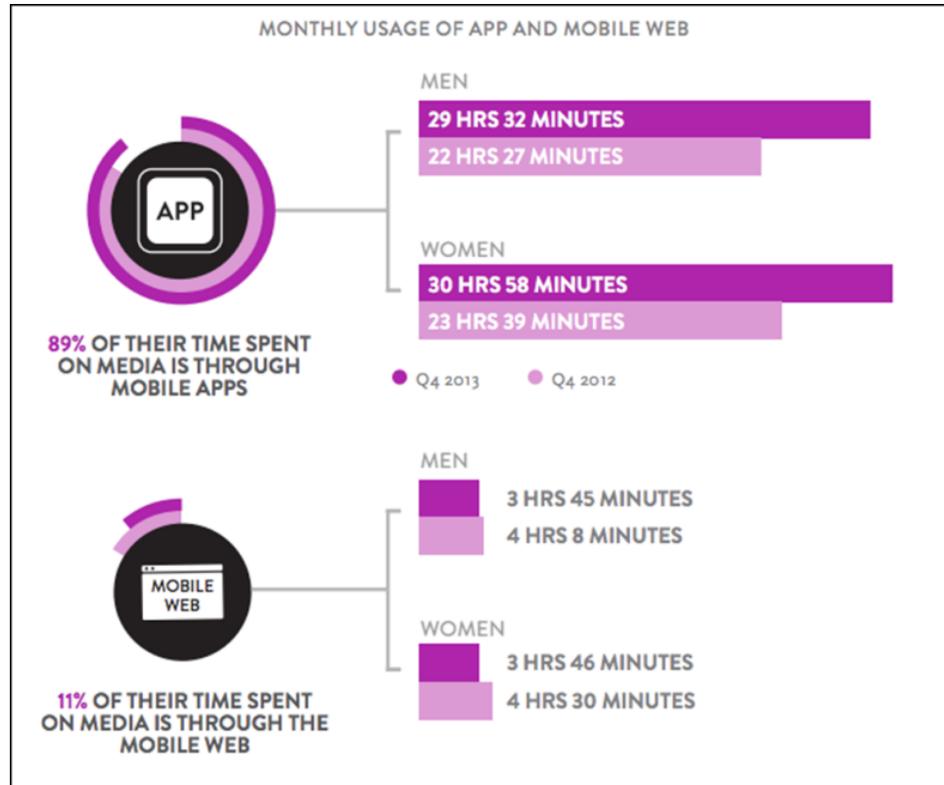


KPCB suggests there is a “\$25 billion opportunity” for mobile advertising in the U.S. That seems to be based on correlations between consumer time spent with mobile devices and marketer advertising spend on mobile advertising. Although this is clearly a rather biased comparison, it does seem to point out that advertisers may not be as enthralled with the mobile medium as are consumers (a point that will be made later in this paper), or they do not view them in the same way.

To put the current situation in the U.S. in perspective, data from Nielsen (www.nielsen.com, 2015) was used to create the comparison shown on Chart 4.



Chart 4. Monthly Use of App and Mobile Web.



As shown, time spent on mobile devices by consumers (both men and women) is growing quite rapidly. Monthly usage for both sexes has grown from roughly 23 hours for both men and women to approximately 30 hours for each in just one year.

All of this growth lends credence to the fact that an app ecosystem seems to be emerging. GroupM Chief Digital Officer Rob Norman (warc.com, 2015) suggests that apps will replace channels and websites as the principle gateway to screen time in the future. He argues that perhaps 50 apps will emerge that will account for 80 percent or more of aggregate screen time on connected devices in the future (warc.com, 2015). So, while app usage may be growing, not all marketers will benefit in the same way from that growth.

Is the future of apps really as bright as it seems, or is the app only an innovation that will see rapid growth and then a rapid decline, as occurred in the 2000 “internet bubble” for a number of what were considered “can’t miss” products (Tan and Wang, 2010)? The field is starting to show some evidence of this “bubble” situation. For example, Rovio, the developer of the wildly successful mobile app “Angry Birds,” announced that it was eliminating 40 percent of its workforce. The reasons given were that the company had been unable to successfully create another app to replace the aging “Angry Birds” product, which has been losing users for the past few years. Thus, it appears that apps in general are subject to consumer wear-out and displacement, even if offered for free.

It is this question of retail app software longevity or long time viability that is the focus of the balance of this paper. To do that, we compare data from the U.S. and China.

Data Background

Prosper International is a consumer research organization which gathers, analyzes, and provides consumer data to a number of retail organizations, both in the U.S.



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and abroad. For example, Prosper data provides the base for the National Retail Federation's retail sales forecasts. Prosper has gathered this data in the U.S. since 2001. It conducts a similar consumer online survey on a quarterly basis in China, and has done so since 2006. Prosper has made its raw data available to the Integrated Marketing Communications department at Northwestern University since 2002 for academic research. This paper is based on that Prosper data.

Since Prosper data is gathered regularly based on a common set of questions, it is possible to develop longitudinal analyses to highlight trends and changes in retailing and related areas such as media usage.

To gather data, Prosper uses a proprietary algorithm (similar to that used by the U.S. Bureau of the Census) to draw its sample for each study. Thus, while the persons surveyed may not be the same, i.e. an ongoing panel, there is enough commonality in the sample base to make fairly accurate predictions about the future.

It was noted that there was a rather dramatic decline in the way and manner in which the U.S. sample was reporting mobile app usage, while usage by Chinese respondents continued to grow. While many of the traditional research studies from around the world seemed to be reporting that app usage was growing, in the U.S., the opposite seemed to be occurring. That initial observation led to some additional analysis, which is now being reported in this paper. Our initial questions were: Is U.S. consumer retail app usage really declining and if so, why, when it still appears to be growing in other markets?

The data set used in this study is based on four years of online consumer data (2010 to 2014). The sample size for the U.S. study was approximately 325,000 responses, while the China sample numbered 140,000.

As a base for the study, an analysis was first conducted on electronic devices that online consumers reported they were using. That data was broken down into three product groups, i.e., Total Computers, Total Smartphones, and Total Tablets and Readers (see Chart 5). Each of the product categories is further broken down by the specific device, i.e., iPad, iPod, Kindle, MP3 Player, Sony Reader, and Android and Windows tablets in the Tablets and Readers category.



Chart 5. Devices Owned

Devices Owned								
Adults 18+								
	2010	2011	2012	2013	2014	AGR	China 2014	Index
Total Computers		103.8	107.2	101.0	91.9		98.3	
Desktop Computer	70.1	48.6	46.2	46.0	42.4	-5.8	47.1	111.1
Mac		6.3	7.6	6.3	6.0	-0.2	2.6	43.3
Wireless Laptop	55.3	41.7	47.1	43.3	39.4	-3.0	41.7	105.8
Wireless Netbook	9.4	7.1	6.2	5.3	4.1	-1.2	6.9	168.3
Total Smartphones	11.3	50.0	61.3	69.5	74.8		111.5	
Android Smartphone		21.6	29.2	34.3	39.4	5.9	77.5	196.7
BlackBerry Smartphone		9.6	5.6	3.7	3.1	-2.1	2.7	87.1
iPhone	11.3	16.1	24.3	28.3	28.1	4.6	25.8	91.8
Windows Phone		2.6	2.2	3.1	4.2	0.6	5.5	131.0
Total Tablets and Readers	61.3	67.5	82.4	98.4	96.3		103.9	
Android Tablet		4.3	7.3	12.4	17.5	4.5	25.0	142.9
BlackBerry PlayBook		1.2	0.7	1.3	1.8	0.2	2.2	122.2
iPad	5.2	10.9	18.4	23.4	22.9	4.8	33.0	144.1
iPod	23.1	19.3	21.4	19.6	15.1	-1.6	6.2	41.1
Kindle*	5.0	9.2	16.3	21.8	19.4	4.1	5.1	26.3
MP3 Player	26.3	19.7	16.2	16.1	14.0	-2.8	20.7	147.9
Sony Reader	1.6	1.3	0.8	1.1	1.5	-0.1	2.9	193.3
Windows Tablet		1.5	1.3	2.7	4.1	0.9	8.8	214.6

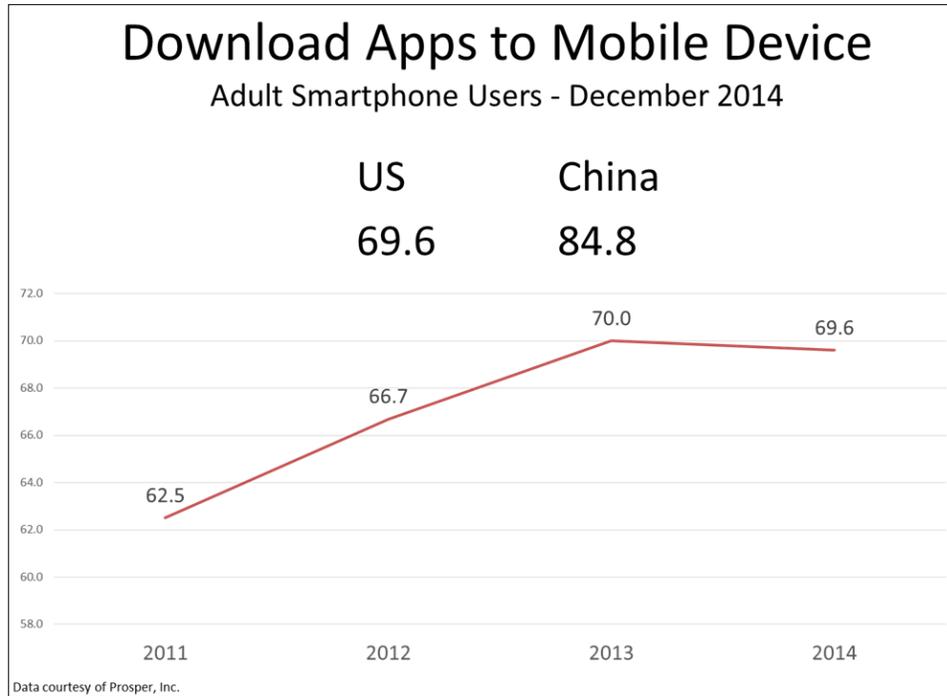
Data courtesy of Prosper, Inc.

The sixth column in Chart 5 reports the AGR for each device (AGR = average growth rate calculated for each year). There we see that there are almost as many devices declining in use as there were others which are growing. The seventh column reports results from Chinese respondents for 2014 in terms of their claimed ownership of the various devices. From that 2014 data for the U.S. and China, an index was created, which compares use in China to the U.S. (i.e., a number greater than 100 indicates Chinese use is greater than in the U.S., while a number less than 100 indicates less use than in the U.S.). For example, the Index for Desktop Computers was calculated as 111.1, which means that the number of Chinese consumers using a Desktop was greater than the U.S. consumers and the number of users was growing, while Mac users were fewer and declining compared to the number of U.S. users. These indices are quite helpful in understanding the differences in device usage in the two countries.

Of note are the findings that show the respondent-reported total downloads of apps to mobile devices for the last four years. As shown in Chart 6, the ratio of app downloads to mobile devices grew from 62.5 percent in 2011 to 70.0 percent in 2013. In 2014, that growth suddenly flattened with only 69.6 percent of apps being downloaded in the U.S. that year.

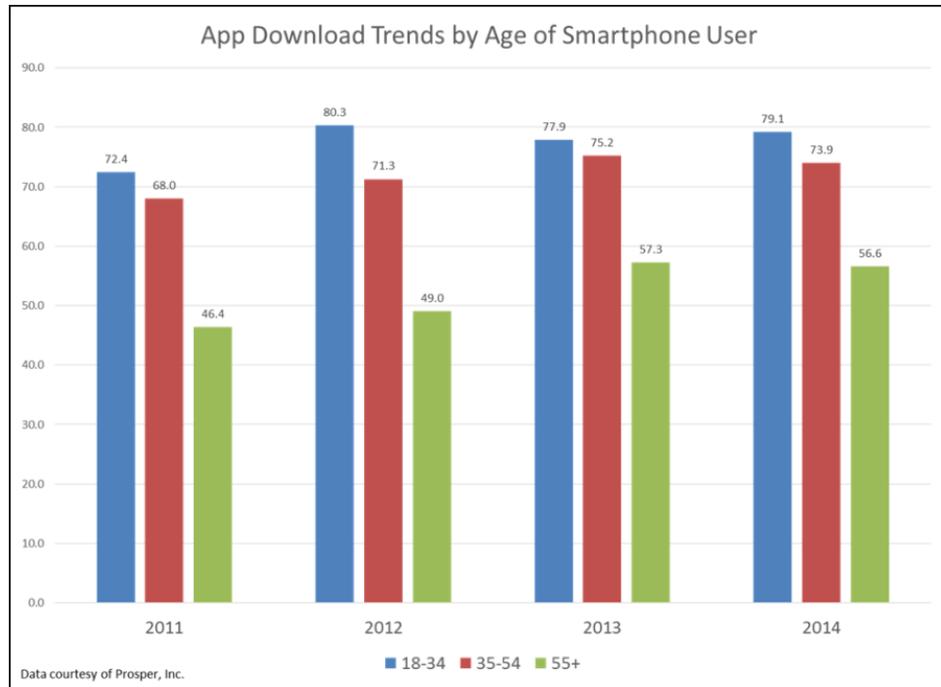


Chart 6. Download Apps to Mobile Device.



During that same time period, the ratio of app downloads to mobile devices was 84.8 percent for Chinese respondents, and the trend line for that usage continues to grow.

Chart 7. App Download Trends by Age of Smartphone User.

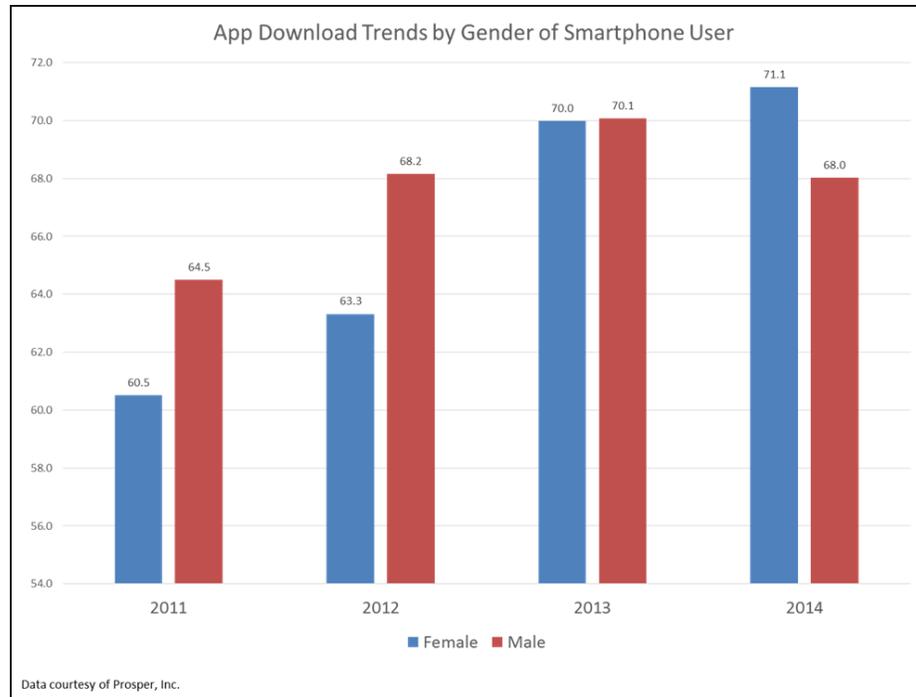


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It has generally been assumed that smartphone users are younger people and they are primarily the ones downloading apps. The data, however, shows just the opposite. As Chart 7 illustrates, downloads by older consumers (55 years plus) grew at a more rapid rate (from 46.4 downloads in 2011 to 56.6 downloads in 2014 or 22 percent), while the younger group grew from 72.4 downloads to 79.1 down-

loads in the same period (approximately 9 percent during the same period). The mid-aged consumer downloads, (those between the ages of 35-54), were growing from 68.0 downloads to 73.9, i.e., again approximately 9 percent during the measurement time frame. It is interesting to note the gender trend of those who download apps on smartphones in the U.S. (see Chart 8).

Chart 8 . App Download Trends by Gender of Smartphone User.



In 2011, downloading of apps heavily skewed toward Males (64.5 million by men, 60.5 million for women). By 2013, the number of apps downloaded was approximately the same (70.0 million for females and 70.1 million for males). In 2014, the male-female mix changed dramatically. While female usage continued to grow, from 70.0 million (2013) to 71.1 million (2014), reported usage for males fell from 70.1 million downloads to 68.0 million in 2014, a decrease of nearly 3 percent year-on-year.

We now return to the comparison of U.S. app usage with that of the Chinese. Chart 9 below shows the apps used by all U.S. consumers by product category. Chart 10 provides category examples. We use the same format as before, i.e., columns one through four are the years 2011 through 2014. Column five is the AGR (Average Growth Rate) during that time period. For example, Game app downloads declined by 1.6 percent during the period. In fact, every one of the 17 measured categories was either flat or declined during the measurement period, with travel apps declining the most. Social networking apps, which were flat, were the only category that did not decline. The sixth column is the number of downloads reported by Chinese respondents.



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Chart 9. Apps Used.

Apps Used Adult Smartphone Users

	2011	2012	2013	2014	AGR	China - 2014	Index
Games	64.1	67.3	64.7	59.6	-1.6	49.3	82.7
Social Networking	53.1	57.5	56.7	53.3	0.0	58.0	108.8
Entertainment	54.4	56.0	50.5	50.5	-1.7	65.2	129.1
Weather	56.6	59.6	54.4	50.2	-2.4	43.6	86.9
Finance	34.3	41.1	36.6	35.4	-0.1	36.4	102.8
Utilities	38.2	41.7	37.6	32.5	-2.1	36.1	111.1
Radio	38.6	43.1	37.9	32.2	-2.4	12.8	39.7
Food	34.1	38.0	34.3	32.2	-0.9	40.0	124.2
Travel	39.4	39.8	34.0	28.8	-3.8	37.2	129.2
Sports	29.6	31.1	27.2	25.1	-1.7	12.3	49.0
Health & Fitness	21.6	25.9	24.4	21.4	-0.2	24.5	114.5
Lifestyle	23.7	26.9	25.3	21.0	-1.0	19.0	90.5
Retailer	26.1	18.8	19.0	20.0	-1.8	43.0	215.2
Newsstand	25.2	24.5	19.7	15.9	-3.3	42.9	269.8
Business	20.8	19.1	17.5	14.9	-1.9	30.7	206.0
Education	17.5	17.0	15.2	14.0	-1.2	31.8	227.1
Medical	13.2	15.9	14.3	13.1	-0.2	13.6	103.8

Data courtesy of Prosper, Inc.

To simplify comparisons between the two countries, once again an Index has been created that shows the Chinese usage of apps compared to that reported by U.S. respondents. As can be seen, some categories index dramatically differently from others. For example, Chinese use of Radio and Sports apps indexed substantially lower than U.S. reported use while Newsstand, Education, Business, and Retailer apps indexed much higher.



Chart 10. App Examples.

App Examples

Games (e.g. Angry Birds, Candy Crush, Words with Friends)
Social Networking (e.g. Facebook, Twitter)
Entertainment (e.g. Music/Movies/TV Shows)
Weather (e.g. Weatherbug, The Weather Channel)
Finance (e.g. Bank, PayPal)
Utilities (e.g. Flashlight, Calendar, QR Reader)
Radio (e.g. Pandora, iHeartRadio)
Food (e.g. Recipes, Restaurants, etc.)
Travel (e.g. GPS, Navigation, Translators, Yelp)
Sports (e.g. ESPN SportsCenter, Golf Channel)
QR Code Reader
Health & Fitness (e.g. Weight Watchers, Calorie Counter)
Lifestyle (e.g. Groupon, Craig s list)
Retailer
Newsstand (e.g. News, Newspapers, Books, Magazines)
Business (e.g. Monster.com, USPS Mobile)
Education (e.g. Language Tutors)
Medical (e.g. Eye Test, WebMD)

Data courtesy of Prosper, Inc.

What about retailers?

In Chart 11 below, a selected group of large retailers that is tracked in the data is shown. In the first column, we reproduce the findings from the ARC Studies, a national survey of consumers conducted to determine the app quality from among a large set of retailers (n=95). The average app quality rating computed by ARC is 43. The rating, as shown in Chart 11, is what was computed for each retailer by ARC. As can be seen, among all the retailers listed, only Costco and Macy's did not reach that average rating by consumers.



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Chart 11. Summary Characteristics of Selected Retailers.

	ARC Rating*	Shopper 2014%**	Growth Index***	Retailer App%****	Growth Index***
Walgreens	73	15.5	-3.0	23.6	12.8
Nordstrom	72	1.2	-19.1	33.9	12.1
CVS	67	16.6	-2.0	23.5	8.6
Walmart	64	45.9	5.2	21.2	11.3
Amazon	54	13.2	15.7	27.3	4.9
Target	45	15.0	-6.5	29.5	11.9
Costco	28	3.4	-1.9	24.5	14.9
Macy's	25	11.2	-8.7	24.7	8.7

*ARC app rating 2015 – 43 overall average
 ** Adults 18+
 *** AGR 2011 through 2014 divided by 2014 level
 **** Smartphone Users

Data courtesy of Prosper, Inc.

The second column is the percentage of all shoppers who said they had shopped at that particular retail store. The respondents are adults 18 years of age and older, living in the U.S. The third column shows the growth index of the various retailers shopped. That Index was calculated based on the average growth rate of shoppers saying they had purchased from that retailer in the survey period. All but two of the retailers had negative AGRs during the measurement period. The exceptions were Walmart at +5.2 percent and Amazon with a positive +15.7 percent growth rate. Nordstrom had the greatest decline among the retailers measured with a -19.1 percent rate.

Column four references the percentage of smartphone users having reported downloading the particular retailer’s app (self-reported). Column five shows the percentage of growth of a retailer’s app downloads. For example, smartphone users who have downloaded the Walgreens app have increased at a 12.8 percent annual rate. Similar figures are shown for the other retailers.

From Chart 11, we can see the wide divergence among retailers and their apps. This shows what is driving retailer app downloads is not closely related to the ARC quality rating. Those retailers who achieved a high consumer rating for their app in the ARC study, such as Nordstrom (72 ARC score) had a very low reported shopping rate among respondents, i.e., only 1.2 percent of respondents reported they shopped at that retailer. Thus, we begin to see the difficulty in trying to understand what U.S. shoppers are actually doing with their apps. Amazon had a fairly high ARC rating of their app, but only 13.2 percent of the shoppers said they shopped there giving that firm a 15.7 percent growth index among shoppers. However, when the growth index was calculated, it was found to be only 4.9 percent in terms of growth of shoppers with smartphones. From this data and these comparisons, one can see how difficult it is and might continue to be to determine which retailer is most successful with their mobile apps and more generally, how app usage is really occurring in the U.S.



Our final analysis compares reported consumer shopper behavior and retailer apps. Chart 12 below compares the use of a retailer app in women's apparel purchases by frequency of shopping. The second reports are for durable products, i.e., television sets and automobiles. In the questionnaire, consumers are asked how likely it will be that they will purchase a television set or an automobile in the next six months.

Chart 12. Purchase Behavior and Retailer Apps.

Purchase Behavior and Retailer Apps						
US – December 2013						
Purchase Clothing or Apparel						
	Once a Week	Twice a Month	Once a Month	Every Other	Other	Never
Retailer App	10.4	18.5	23.3	21.1	13.9	12.9
No App	7.0	9.4	15.9	21.9	25.0	20.7
All Adults 18+	7.3	10.4	16.6	21.9	23.9	19.9
	Purchase TV next 6 months		Purchase Auto next 6 Months			
Retailer App	21.8		18.2			
No App	13.1		11.0			
All Adults 18+	14.0		11.8			

Data courtesy of Prosper, Inc.

What is interesting about this comparison is the growth in the use of apps in the purchase of women's clothing. As the respondent's rate of purchase declines, the rate of app usage increases. The same is true, however, for those who do not use an app. It appears the app may be replacing store visits by consumers. It may well be that these respondents are keeping up on women's clothing styles and fashion and other information through the app rather than making a store visit. If that is the case, the retailer likely should change his or her in-store shopping activities to encourage store visits, which commonly generate impulse sales.

The data for planned purchases for television sets and automobiles is just the opposite. Those using an app have a much greater purchase rate than those who say they are shopping with No App and the overall All Adults classification. It seems quite likely that the app in these categories is being used more as a shopping tool than other alternatives.

Findings and Next Steps

From this data, we have been able to develop some preliminary findings that deserve further investigation.

1. It seems clear that the only relevant way to judge apps in the marketplace is through consumer reported use. Yet, downloads do not necessarily equate to usage.
2. There is a huge number of comparisons and calculations about apps which are tied to consumer use of various devices and which are reported in the marketplace. The penetration of apps in the marketplace is quite high, therefore additional studies on device usage and deployment do not seem to have much relevance in understanding the app marketplace.
3. Reported consumer ratings for an app does not seem to have much relationship to app usage. Highly ranked apps in the ARC studies do not correlate very well with actual reported usage by consumers.



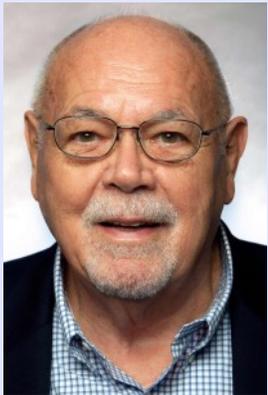
4. App usage varies a great deal by country and category. Chinese consumers continue to increase their usage of apps, while the usage rate in the U.S. is now trending downward. Thus, there seems to be little crossover or relevant comparisons between the two markets studied. Apps are a local phenomenon and are likely to continue to develop in that way.
5. Traditional measures, such as time spent with apps, does not seem to be a relevant measure. Unlike television commercials, which appear randomly (at least from the consumer perspective), the larger the amount of time spent with television, the greater the likelihood that the commercial will be seen. Apps must be accessed to be effective, thus measures of these promotional devices are needed. That may prove to be a difficult task however, since apps appear to be used in combination with other retailer activities such as sales, couponing, discounting and the like, and parsing out the impact of the app may be quite complicated.
6. Clearly, mobility is on the rise and will likely become the most widely used of all social media. Thus, it is critical that retailers and manufacturers determine a forward-looking strategy for their firms and their products. Thinking of apps as merely another sales tool seems to be underestimating the value of this new promotional device.

In terms of the question asked at the beginning of this paper, are apps the future of online mobile marketing, only a flash in the pan that will soon disappear, or will they be replaced by another innovation? It is hard to say, and more accurately, it will be the consumer who decides that, not the marketer.





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Rethinking Retail: Levi Strauss & Co. Deploys Inventory Analytics to Delight Customers

By Dan Gutwein, Director of Retail Analytics, Retail Solutions Division, Intel Internet of Things Group

What can happen when analytics are integrated into the frontlines of retail? Levi Strauss & Co. is piloting a solution that is poised to bring in-store retail to new levels of customer satisfaction and inventory management. It started with the retail challenge of tracking in-store merchandise in real time. Inventory accuracy is the baseline for enabling other types of analytics and data science in the retail store – and for improving customer engagement. The following is a summary of a case study about the Levi Strauss & Co. and Intel partnership.



The Fusion of Data

Noah Treshnell, senior vice president of Retail & Global Retail Capabilities for Levi Strauss & Co. in the Americas, is helping to move the retailer forward with data-driven insight, which can streamline everything from day-to-day operations to long-term planning. According to Treshnell: “We’re interested in technology that’s going to enhance and improve the consumer experience in our stores. We’re bringing that to life through accuracy and inventory visibility, so that when consumers come into our stores they find what they want. They find it in their size, on the shelf, and it’s available. And as important, we’re empowering our stylists with the right tools to deliver superior customer service. They’re not spending time in the back with receiving or trying to hunt and peck for product. It’s available on the shelf, so they can spend more time with the consumer and, ultimately, that culminates in a better overall consumer experience.

“Accurate store inventory can support planning, increase sales staff efficiency, and reduce the in-store equivalent of online ‘shopping basket abandonment,’ where items are tried on, but not purchased,” Treshnell continued. “And because the solution is entirely based on product tagging, it does not put customer privacy at risk.”

The fusion of data from multiple sources delivers better insight; the technology puts it in the hands of decision makers much faster. The solution employed for the Levi’s stores by Intel’s Internet of Things Group operates as follows: Small RFID tags are placed in the product itself and these tags are read by an Intel®-based sensor hidden in the ceiling of a Levis’ store. This data is then sent to a small gate-



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way in the store, where it is filtered and the data “events” are sent into the cloud. Once the events get in the cloud, they can be used to support advanced analytics. Read rates are more than 95 percent and every time a garment moves, it is tracked. Installation was essentially plug-and-play using Power over Ethernet (PoE); all that it requires is to plug in a single Ethernet cable.

Smartrac Technologies developed the small RFID tags inserted into the merchandise. It also created the application and user interface – running on the Intel cloud platform – that delivers retailers insight in a simple fashion. Smartrac’s Leonard Nelson explains: “It’s nice to know that your inventory is at a high accuracy level, but it’s not sufficient enough to really transform the experience of the consumer and to make your supply chain and your enterprise more adaptable,” Nelson says. “Through the cloud platform, we’re able to take the sensory data and translate that into insight for the executive team at Levi Strauss & Co. With the retail sensor network, we’re gathering a lot of data and it comes in very fast. There are really two levels of information: one is at the gateway – at the edge – where we’re processing data and turning it into business events. For example, has this pair of jeans moved across the store? That’s important to know. And then the second level is apparent once you get this information to the cloud. We take the data and events and translate this into board-level KPIs –that’s the big data piece. Across thousands of stores, we can help translate the information that’s relevant to (the) enterprise.”

Turning Data into Retail Opportunity

Because connected retail solutions rely on merging multiple systems or processes, they may seem overwhelming and prohibitively complex. By working together with technology industry leaders, Levi’s was able to get a viable pilot running in just a few months.

The team is now working on extending the solution capabilities, with Intel’s data scientists working on new algorithms to locate misgrouped items on the floor and in the stockroom. Intel is also exploring ways to extend sensor capabilities at the device level. The resultant analytics have the potential to create a richer in-store experience that mirrors the .com space and contributes to a consistent omni-channel experience for the customer. Store layout is also being reevaluated, with popular items moved to the highest-trafficked customer routes on the floor. Cross-store inventory and shipping can be coordinated based on evolving real-time data to meet the immediate needs of local markets.

Cross-store inventory and shipping can be coordinated based on evolving real-time data to meet the immediate needs of local markets.



Dan Gutwein is the Director of Retail Analytics, Retail Solutions Division, at Intel Internet of Things Group.

Retail stores typically offer 60 percent to 65 percent on-shelf availability.¹ The Levi’s retail sensor platform deployment is changing this – with a focus on increasing customer satisfaction. The results are exciting, delivering clear, actionable insight to Levi’s store management and to its executive team – and helping them to put the customer first. Treshnell sums up the solution’s value and its considerable potential: “At the heart of it, what we’re bringing to life together is technology that’s going to improve and enhance the consumer experience. That’s what this is about. It’s about taking the information to inform better current and future business decisions – to ultimately benefit the consumer in our stores. We want to satisfy and delight the consumer every single time they come into our stores, and this is going to help deliver on that promise.”

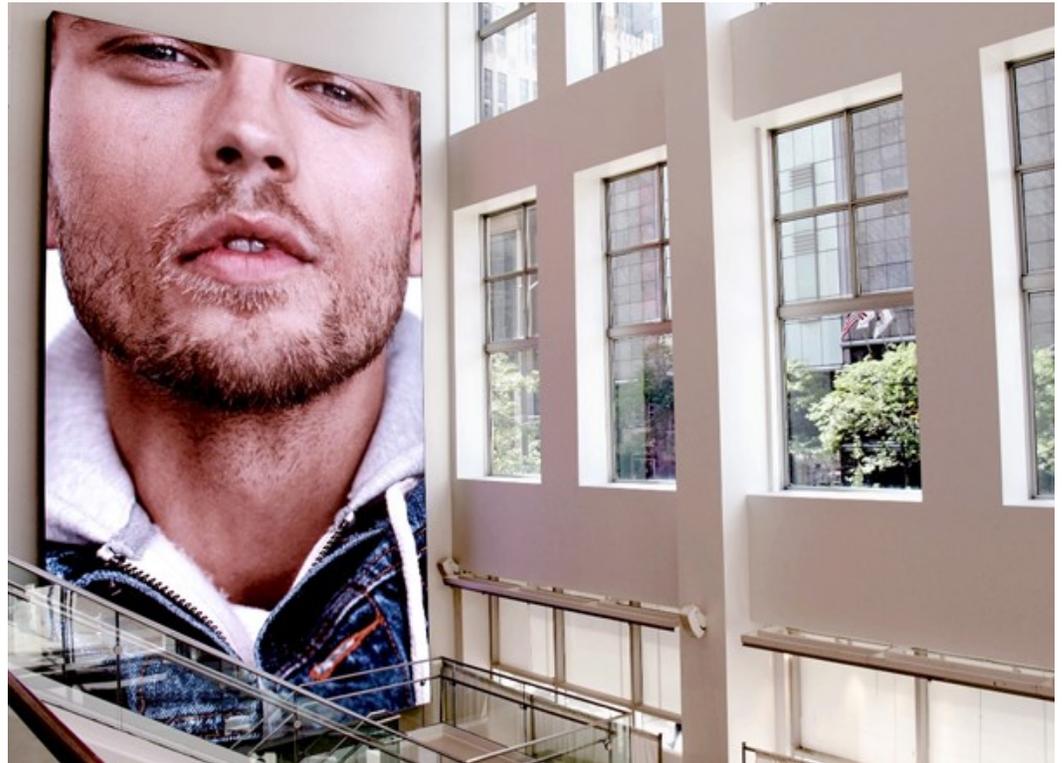


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¹ See <http://www.sec.gov/Archives/edgar/data/215419/000021541914000021/ckp-20131229x10k.htm>.

Taking Gap's Brand Impact to New Heights

By Bob Magnus, Vice President of Partner Programs and Sarah White, Creative Director, D3 LED



Digital in-store retail graphics put a retailer's message up close and personal. Designing images to engage, entertain, and inform has long been a mainstay within retail. Ultimately, this imagery becomes part of a retailer's messaging, expanding its brand identity to increase and solidify customer loyalty. For example, because of consistency in art direction, just about anyone viewing Gap Inc.'s iconic photos will immediately

make the brand association. Today's retailers reach media savvy customers by bringing their brand imagery via video directly into the shopper's experience.



Constantly raising the bar, retailers strive to outdo one another with innovations in material use, design creativity, and by expanding their mixed media budgets. Digital technology feeds a brand's appetite by increasing product options to create flexible media platforms. Now, virtually any surface in a retail store has the potential to display video imagery. From the expected to the unexpected, digital signage is being applied to walls, ceilings, columns, fixtures, and more. As a result, retailers and graphic designers, now stocked with a pantry full of visual ingredients, are constantly looking for the best recipes to make their stores visually appealing.



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Shoppers gravitate toward retailers with which they can identify. They seek retailers with a common sense of style relating to their own self image. Brands that create an environmental experience connected to a target audience's image, strengthen brand loyalty. This customer relationship is what Gap Inc. was looking for when it installed a new high-resolution LED display filling nearly the entire three-story wall in the atrium at the front of its North Michigan Avenue store in Chicago. The architecture and store designers defined the space. LED display technology from D3 LED, LLC and ComQi, delivered the canvas with larger-than-life brand impact.

Entering the store on the Southeast corner of Michigan Avenue and Ohio Street, surrounded by what is arguably some of the most aesthetically appealing urban retail real estate in the world, customers are warmly greeted by Gap Inc.'s fashionable and familiar ad images on their new 30' high x 17' wide, 6mm high resolution display. Neither overwhelming nor overbearing (as one might fear, considering its size), this indoor LED display, designed for outdoor brightness to offset the plentiful sunlight that floods the atrium in the summer months, fits comfortably with both the building and the neighborhood.



In fact, thanks to three stories of windows facing both Michigan Avenue and Ohio Street, the display can be seen several blocks away on Michigan Avenue -- which was intentional. Avoiding potential permitting issues by installing the display indoors, Gap Inc. considered various display options for the atrium wall. The original digital display design included an array of LCD screens. Very quickly, the design team determined that the sunlight streaming into the atrium dictated that an LCD's brightness limitations were too much to overcome. A direct view LED

display would provide seamless image clarity with the brightness needed and an increased display life.

Installed on a north-facing wall, the display is subject to copious amounts of ambient natural light through 10 oversized windows that face west onto Chicago's "Magnificent Mile." Ensuring that the images on the indoor display were clear enough to be seen by the masses on Michigan Avenue was paramount. According to the well-known travel guide, *Frommer's*, "In terms of density, the area's first-rate shopping is, quite simply, unmatched." Standing out in the crowd of high-end retailers required some clever technology, including the ability to match luminous output to time-of-day and weather conditions.

Operating on a typical fall Chicago day at only 40 percent brightness during daylight hours, and 15 percent brightness at night, the monumental display is the area's most visible lighted display and is easily seen by shoppers, pedestrians, and street traffic. By comparison, an array of LCD screens would be challenged running at full brightness to avoid the "washout" effect on their images, given significant ambient light. The new LED display delivers Gap Inc.'s casual, cool content with ease, without concern for glare or transference of sunlight off the display's face (as can occur with LCD screens), even on the sunniest of days.



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With D3's module management technology, the brightness of every module of the display can be individually controlled from the display's control room, from 400 feet away or from virtually anywhere in the country. Along with image data, the power draw module temperatures and remote management features ensure that the image is operating at its ideal brightness, without blowing out the neighbors with glare or exceeding predetermined environmentally friendly power consumption standards. Gap Inc.'s operators can be automatically notified of performance abnormalities, ensuring ideal 24/7/365 performance. All of these control systems are designed with continuous operation and display longevity in mind.

By selecting a 6mm pitch with 1,327,104 surface mounted pixels, Gap Inc. has also invested in and planned for what is commonly referred to in the dynamic digital display industry as "sign envy." After all, what is the point of creating all of those iconic photographic images if a brand is not going to display them at a resolution that does them justice? A more economically friendly investment would have called for 8mm or even 10mm pitch for a display with these diverse viewing requirements, but the 6mm choice helps make the store at 555 North Michigan Avenue in Chicago an iconic location for the company.



As a focal point in one of the world's busiest and highest profile retail settings, with viewing angles inviting in passersby as well as enticing customers already inside the store, the LCD/LED conundrum loomed large. With higher resolution capabilities on each single screen, LCD comes out of the gate quickly. While the aforementioned brightness issues at this location helped LED take stride, decision makers were more impressed and allured by the concept of a single, continuous image, without seams. That, as well as superior viewing angles (minimal "black-out" as you walk by), are only possible with the seamless visual delivered by an LED display. While the rectangular shape and size were, in this case, defined by the architecture, there is always next time to capitalize on the virtually unlimited size and shape possibilities that the form factor of LED displays offers.

Lastly, helping LED technology further their lead down the homestretch, conventional wisdom concedes to consistent color and image quality on an LED display of this scale. Managed as a single canvas, an LED display will quite simply outperform a matrix of individual LCD screens, each of which has its own unique performance characteristics. With the scales tipped decidedly to LED technology, the only thing left to do was build and install their new video wall. No small order.

Without room for typical move-and-lift equipment, Gap's display was built in sections. Knowing that each section was to be lifted and placed only with the strong and capable hands of some of Chicago's most skilled union sign installers, D3 and ComQi were challenged to engineer a solution that could be hoisted and installed by hand, with relative ease. The three-man job took just three days, by hand.



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Bob Magnus is Vice President of Partner Programs at D3LED.



Sarah White is Creative Director at D3LED.



Some industry experts have stated that video walls will soon be part of every retail store design discussion. For Gap, Inc. and the Michigan Avenue store design team, this discussion is well on its way. How this translates to its overall design philosophy is not yet known, but you can bet that the brand impressions made with its new display in the premiere Chicago store will be the benchmark against which future projects will be measured.

D3LED Company Profile

PRI welcomes D3LED as a member firm and is pleased to provide this profile to *Journal* readers.

D3 is a global technology company that designs, engineers, and manufactures turnkey LED display and lighting solutions that enhance destination-based digital media experiences. As a total solutions provider, the company's expertise is recognized through worldwide installations within Retail, Advertising, Architecture, Entertainment, Gaming, Sports and Transportation markets.

This year, D3 has reached its 10th anniversary in the Digital Signage Industry. Within this time, the company has significantly influenced the use of LED displays in retail, bringing creative visions to life with world-renowned brands such as: Gap Inc., Forever 21, Gucci, Victoria's Secret, Aeropostale, Guess, Sephora, and Quicksilver.



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What Information Do Opinion Leaders and Opinion Seekers Search for Online?

By Mototaka Sakashita, Research Fellow, Retail Analytics Council and Associate Professor of Marketing, Keio University (Japan) and Vijay Viswanathan, Director, Retail Analytics Council and Assistant Professor, Integrated Marketing Communications department, Northwestern University

This article attempts to understand the nature of information (i.e., product- or promotion-related) that opinion leaders and opinion seekers consume from a company's website. We also examine whether there are significant differences in search behavior. For the analysis, we use a combination of clickstream and trait data provided by a popular sports nutrition firm in Japan. We find that while opinion leaders do not view product-related content, those with high brand commitment view more promotion-related content. Conversely, while opinion seekers do not view promotion-related content, those with high brand commitment view more product-related content. The study develops a comprehensive framework to understand the information search behavior of these two segments and provides managers with a better understanding of how different segments consume different content.

Many prior studies have used the two-step flow of communication – where information is first transferred to opinion leaders through different channels of media, and opinion leaders then transfer that information to their followers – to explain the impact of marketing communication on product performance (e.g., Katz and Lazarsfeld 1955). However, in recent years, we have witnessed an explosion in the number of media channels thanks to digital technology. Moreover, in today's world, individuals decide where to search and what content to share online, thus significantly affecting consumers' purchasing behavior. Consequently, we know little about the nature of information searches by different consumer segments especially in a digital context. In light of these developments, it is necessary for firms to understand the nature of information sought by opinion leaders so that they can develop their communication strategy more effectively. At the same time, it is important to understand the information-seeking behavior of another segment: opinion seekers. Opinion seekers are an important segment as they seek factual information and opinions from other individuals before making their purchase decisions. Previous studies have found that the segment of opinion seekers is quite different from opinion leaders. However, we know little about the nature of information that they seek online.

Opinion seekers are an important segment as they seek factual information and opinions from other individuals before making their purchase decisions.

This research works to understand the nature of information that opinion leaders and opinion seekers consume from a company's brand website. Specifically, we attempt to understand whether these segments search for more Web pages that carry brand information and/or campaign information and thus evaluating whether there are significant differences in their search behavior. Moreover, we try to identify the moderating role of brand commitment as a driver to fulfill different goals in search activities by these two distinctive segments: opinion leaders and opinion seekers. In our theoretical framework, we build on prior work that has examined the motivations for individuals to share or seek information in order to explain the nature of information that they seek. We use data from a natural field experiment carried out by a popular sports nutrition product in Japan for the analysis. The study makes at least two important contributions:



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- First, it bridges prior work on opinion leaders and opinion seekers and develops a comprehensive framework to understand the information search behavior of these two segments.
- Second, it provides marketing managers with a better understanding of how the two segments consume different content on the firm's website.

Theoretical Framework

Opinion Leader: In order to understand the nature of content that opinion leaders seek, it is first important to understand their motivations for seeking information and sharing it with others. While previous studies have attempted to understand the motivations for why opinion leaders share information and engage in word-of-mouth behavior (Cheung and Lee 2012), Burt's (1999) theory of social capital is perhaps the most relevant to understand the link between motivations for sharing information and the nature of information content sought out by information leaders. Burt's explanation of how opinion leaders acquire and diffuse information is

... opinion leaders acquire information because of their strong relationships or cohesion with other groups.

also consistent with the two-step flow of communication. According to Burt, opinion leaders acquire information because of their strong relationships or cohesion with other groups. Such information acquisition often occurs through socializing communications. Opinion leaders diffuse information within a group because they need to appear attractive

to individuals with whom they have a strong relationship. In other words, opinion leaders diffuse information within a group because of competition or equivalence. And they utilize innovations or new information in order to stand out. Chan and Misra (1990) also suggest that opinion leaders have an inherent need to stand out from the rest of the crowd. They term this need as public individuation. According to this theory, an individual can become individuated through greater knowledge or interest in a particular product than seekers and thus be judged as more influential (Goodwin and Frame 1989).

We use these theories and work backward, starting from the goal of an opinion leader to understand the nature of content that he or she would seek on a company's brand website. An opinion leader has a need to stand out in the crowd and is ready to utilize any new information to do so. We therefore hypothesize that opinion leaders frequently visit pages that update their content often and offer new information. Conversely, opinion leaders infrequently view pages that are not updated as often. We make a reasonable assumption that on a brand website, content related to campaigns and promotions are updated more often than content relating to the firm, product, or the brand. We term the former as promotional content and the latter as product content. Therefore,

- Hypothesis 1a: Greater tendency to engage in opinion leadership results in more views of promotional content.
- Hypothesis 1b: Greater tendency to engage in opinion leadership results in fewer views of product content.

As we continue our backward journey of information-seeking behavior of opinion leaders, the first step is the transfer of information from the firm to opinion leaders. According to Burt, opinion leaders acquire information through socializing communications with those with whom they have a strong relationship (i.e., cohesion). One approach to understanding whether an individual shares a strong relationship with a brand is through brand commitment. Commitment is a key dimension of attitude strength and an enhanced desire to hold a unique type of attitude (Pomerantz, Chaiken, and Tordesillas 1995). Prior studies have examined the consequences of high brand commitment and found that a higher level of brand commitment results



in a higher level of customer involvement (Gruen, Summers and Acito 2000) and positive word of mouth (Westbrook 1987) among other consequences. To summarize, brand commitment serves as a driver that motivates people to act toward their goals in a brand-related context.

... brand commitment serves as a driver that motivates people to act toward their goals in a brand-related context.

From the point of view of this study, it therefore seems that opinion leaders who have a strong relationship with the firm, and hence high brand commitment, visit the firm's website frequently to acquire new information and achieve their goals. We thus hypothesize that those opinion leaders who have high brand commitment view content that is updated and relevant to meeting their goals to a greater extent than those with a low brand commitment. Conversely, they spend less time viewing content that does not help them achieve their goals.

- Hypothesis 1c: Higher brand commitment results in more views of promotional content by opinion leaders.
- Hypothesis 1d: Higher brand commitment results in fewer views of product content by opinion leaders.

Opinion Seeker: Prior studies have defined opinion seekers as "individuals who sought information or opinions from interpersonal sources in order to find out about and evaluate products, services, current affairs, or other areas of interest" (Feick, Price & Higie 1986, p. 302). From the perspective of the two-step flow communication theory, opinion seekers are viewed as the message receivers who get information from opinion leaders. Some studies opine that an opinion seeker is often one who has little knowledge and is anxious about the consequences of a purchase decision and therefore seeks advice from someone he or she knows (Beatty and Smith 1987). Many studies view opinion-seeking as a co-phenomenon of opinion leadership (Flynn, Goldsmith and Eastman 1996). Based on these findings, it seems that opinion-seeking suggests a tendency to search for factual information and/or opinions from other people. Their main goal seems to be to lower the risk associated with a purchase. Therefore, from the point of view of this study it then seems that opinion seekers view pages related to factual information about the firm, the brand, and the product to a greater extent than pages that convey information about ongoing campaigns and promotions. We therefore hypothesize that:

- Hypothesis 2a: Greater tendency to engage in opinion-seeking results in fewer views of promotional content.
- Hypothesis 2b: Greater tendency to engage in opinion-seeking results in more views of product content.

Since opinion seekers strive to acquire factual information about the brand and minimize the risk of a purchase decision, it would be interesting to examine how brand commitment moderates the extent to which they view different content on a firm's website. As noted in the previous section, brand commitment motivates individuals to act toward their desired brand-related objects and achieve their goals. We therefore posit that opinion seekers who have high brand commitment view pages that convey factual information to a greater extent than opinion seekers with low brand commitment. Similarly, opinion seekers who have high brand commitment view pages that do not carry product-related information to a lesser extent than individuals with low brand commitment. We therefore propose the following hypotheses:

- Hypothesis 2c: Higher brand commitment results in fewer views of promotional content by opinion seekers.
- Hypothesis 2d: Higher brand commitment results in more views of product content by opinion seekers.



Research Design

Data Collection: Two types of data, browsing data from a company's brand website and attitudinal data from an online survey, were collected for the analysis. Browsing data was recorded from a real brand website in Japan. Health nutrition products were selected because consumers tend to visit the website with a relatively higher level of involvement resulting in a more cognitive information search, thus making it suitable to track clickstream behavior. The website belongs to Japan's leading brand in the health nutrition category, and contains various kinds of information. There are more than 20,000 registered members, ranging from serious health and body building-conscious individuals to individuals who are more casually concerned about health and nutrition. The website consists of eight different content categories: top page, brand information, product information, sports and nutrition laboratory, sport types and required nutrition, fan club, event information, and campaign information. Registered customers can access different content from the top page, but they also can access content directly from search engines.

To gather the browsing data, all of the browsing activities on the brand website of all pre-registered customers were recorded during a three-month promotional campaign period. All the URLs were recorded in the browsed order for each visit made by each unique customer along with the browsed time. Page views were then aggregated per those eight categories per customer, forming accumulated page views during the period per customer. To compute measures pertaining to opinion leader, opinion seeker, and brand commitment, an online survey request was sent out to all of the registered customers. Those who completed a survey were presented a token gift of appreciation. Surveys with extremely short or long answering times or with erroneous answers were eliminated to form a smaller sample of 2,711 subjects. The compiled browsing data was then merged with the online survey data using unique customer IDs. About 65 percent of this sample actually visited the website during the three-month period resulting in 1,777 observations. Seven observations with more than 32 visits were eliminated because they were thought to be too many. Therefore the final sample for the analysis was based on the browsing behavior and attitudes of 1,770 subjects. The average number of visits during the three-month period was 3.15 per customer.

Independent Variables: **Opinion leadership** was measured using three of the six scales from Flynn et al. (1996). The items were:

- "My opinion on nutrition supplements seems not to count with other people."
- "Other people come to me for advice about choosing nutrition supplements."
- "I often persuade others to buy the nutrition supplements that I like."

They were measured on seven-point scales from "I do not agree" to "I agree." We reverse coded the first item and took the average of the three items to develop a score of opinion leadership for each individual. The reliability of the three items, i.e., Cronbach's alpha, is 0.61

Opinion seeking was measured using three of the six same scales from Flynn et al. (1996). The three items were:

- "When I consider buying a nutrition supplement, I ask other people for advice."
- "I don't like to talk to others before I buy nutrition supplements."



- “I feel more comfortable buying a nutrition supplement when I have gotten other people’s opinions on it.”

They were also measured on seven-point scales from “I do not agree” to “I agree.” And as before, we reverse coded the second item and used the average of the three items as a measure of opinion seeking for each individual. The reliability of the three items, i.e., Cronbach’s alpha, is 0.60.

Brand commitment was measured using scales from Oliver (1998) on five-point scales (“strongly disagree” to “strongly agree”). The items were:

- “I am really attached to the brands of nutrition supplements that I use.”
- “I stick with my usual brands of nutrition supplements because I know they are best for me.”
- “I am committed to my brands of nutrition supplements.”

The average of the three items was used as a measure of brand commitment. The reliability of the three items, i.e., Cronbach’s alpha, is 0.90.

Dependent Variable: Since analyzing the page views for eight different types of content would be tedious, we conducted a factor analysis using Varimax rotation to reduce the number of dimensions. The analysis revealed two factors with an eigenvalue of greater than one and explained 50 percent of the total variance.

- The first factor comprised of the top page, brand information, product information, sports and nutrition laboratory, and sport types and required nutrition. The reliability for this factor that we termed **product-related content** is 0.54.
- The second factor comprised of the fan club, event information, and campaign information. We termed this factor as **promotion-related content** and it has a similar reliability of 0.50.

We added the page views across all of the content in each factor and thus obtained two measures. The first is the total number of page views pertaining to product content and the second is the total number of page views pertaining to promotional content.

Hypothesis Testing: We used a univariate analysis of variance (ANOVA) with opinion leader (2), opinion seeker (2), and brand commitment (2) as independent variables. In the first model (M1), we had the total number of page views pertaining to product content as the dependent variable. In the second model (M2), we had the total number of page views pertaining to promotional content as the dependent variable. We used the Hochberg's GT2 correction to correct for unequal cell sizes. Both of the models were significant (M1: F Statistic = 4.7, $p < 0.01$; M2: F Statistic = 4.33, $p < 0.01$).

We now follow up with the marginal means and report significant results using the 95 percent confidence interval. We first report the results for opinion leaders. We did not find a significant difference in the number of page views for promotional content between opinion leaders (Mean=5.33, SE=0.17) and non-opinion leaders (Mean=5.13, SE=0.20). Therefore Hypothesis 1a is not supported. However, we did find that opinion leaders (Mean=3.37, SE=0.50) had significantly fewer page views of product content than non-opinion leaders (Mean=5.26, SE=0.62). Therefore Hypothesis 1b is supported. Regarding the moderating effect of brand commitment on opinion leaders, we find that opinion leaders with high brand commitment (Mean=5.92, SE=0.23) had significantly more page views of promotional content than opinion leaders with low brand commitment (Mean=4.74, SE=0.24). Therefore Hypothesis 1c is supported. However, we did not find a significant difference in the



number of page views related to product content between opinion leaders with high brand commitment (Mean=4.30, SE=0.69) and those with low brand commitment (Mean=2.45, SE=0.73). Therefore Hypothesis 1d is not supported.

We find that opinion seekers (Mean=4.93, SE=0.19) have significantly fewer page views of promotional content than non-opinion seekers (Mean=5.53, SE=0.18), thus lending support to Hypothesis 2a. However, we did not find a significant difference in the number of page views related to product content between opinion seekers (Mean=4.11, SE=0.57) and non-opinion seekers (Mean=4.52, SE=0.55). Therefore Hypothesis 2b is not supported. Examining the moderating effect of brand commitment on opinion seekers, we did not find a significant difference in the number of page views related to promotional content between opinion seekers with high brand commitment (Mean=5.20, SE=0.27) and those with low brand commitment (Mean=4.65, SE=0.26). Therefore Hypothesis 2c is not supported. We find that opinion seekers with high brand commitment (Mean=5.57, SE=0.81) had significantly more page views of product content than opinion seekers with low brand commitment (Mean=2.65, SE=0.78). Therefore Hypothesis 2d is supported.

Discussion

The study not only supports findings from previous studies but also makes several important contributions to ongoing research on online search behavior. While most work until now has examined online search behavior broadly, we take a closer look at the heterogeneous nature of online search activity, especially with regard to opinion leaders and opinion seekers. Consistent with prior work, we too find that opinion leaders and opinion seekers are distinct segments; the correlation between the two behaviors in our data was 0.012. More importantly, we show that different goals for opinion leaders and opinion seekers result in widely different information search behaviors. In addition, we show the important role of brand commitment in enabling opinion leaders and opinion seekers to acquire relevant information and thus achieve their goals. The combination of browsing data from a brand website and trait information of a relatively large sample using an online survey is novel and lends credibility to the study. The study also provides several insightful results for marketing managers. Websites are an important touch point and it is therefore vital that firms adopt a customer centric approach to make it more relevant and user friendly. Firms can use the results of this study with a better idea of how to customize their web content for different consumer segments. This would help them

An important result for firms here is that brand commitment and website design go hand in hand.

better target opinion seekers who are potential customers and opinion leaders who are perhaps key influencers and thus improve the effectiveness of their online marketing efforts.

The study has its limitations. The results are based on one product category with relatively high involvement. Future studies can examine other factors such as customer satisfaction and loyalty. The reliability for opinion leaders and opinion seekers could be higher. However, it is important to note that there is no change in the results when only two items with the highest loadings or just a single item are used as measures for these constructs. Future studies can examine brand commitment as a multidimensional construct e.g., calculative and emotional, and evaluate the moderating effect of each of these dimensions.





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Why Retailers Should Plan to Fail: Four Steps to an Agile Retail Strategy

By Tom Nix, CEO, Scala

With so many data points surrounding each consumer – gathered both online and in the physical store – retailers now have an opportunity to fully map out and react to consumers' entire shopping journeys.

Online, retailers have been learning from different data points at a rapid pace, but essentially online shopping is just the retailer using digital to adjust quickly to the shopper's expressed interests. So why can't brick and mortar stores who have switched to digital do the same? They can, and they should.

The handoff between collected data and dynamic in-store displays is where the creative aspect of digital solutions comes into play. And retailers, responding to the rapid-fire changes in trends, shopping habits, and audience behavior, need to be agile – ready to adjust, measure failures and successes, adjust and try again. And again! No content (online, on static print screens or digital screens) is going to be perfect 100 percent of the time, and with so much data at your fingertips, applying analytical knowledge to in-store strategy shows potential buyers that you're committed to creating a personalized experience. Analyze and collect data, learn from misfires, and be ready to adjust on the fly. In short, there are four steps of a successful, agile retail process: connect, engage, analyze, optimize.

The retail world is a rapidly moving target of trends, and with environments and audiences changing, retailers need to not only not be afraid of failing, but to plan to fail. Have an adjustable process in place to test communications and experiences, adjust, test, adjust, and test again. Keep moving even more quickly than your hyper-connected audience is moving to ensure you stay relevant. First, connect with and engage your audience. Did it work?

In short, there are four steps of a successful, agile retail process: connect, engage, analyze, optimize.

That is where the "analyze" step comes in. Ask the hard-hitting questions. Were sales increased? Was a higher-margin purchase made? Was friction reduced? Were visitors converted into customers? Finally, be ready to keep moving after figuring out what did not work, then shift the strategy, optimizing the message for the next audience. By fully mapping out the journey, planning to draw from the data and analyze it, planning for failures and being ready to optimize – you are doing right by your customers and for your bottom line.

Businessman and publisher Malcom Forbes once said, "Failure is success, if we learn from it." Brick-and-mortar stores can and should learn from online retailers' "plan-to-fail," highly agile strategies. That might sound counterintuitive at first, but as long as you have a strategy that is adaptable, planning for small-scale testing and adjusting can truly optimize the experience. According to a 2014 *Forbes* article based on a survey that spanned all demographics of shoppers, "94 percent of total retail sales are still generated at brick-and-mortar stores." By bringing together the knowledge gained online and the in-store experience, retailers can truly obtain the holy grail of optimized retail experience – gathering knowledge and analytics behind the scenes and seamlessly presenting to potential customers that you know who they are and what they want. With retail strategies, if it is not measurable or actionable, it is meaningless.

Efforts to create a straight path to purchase and retargeting, which has been successful online, can help in the physical store as well. Digital signage solutions allow retailers to create personalized experiences and if the messages "failed," edit on the spot, in the moment, and at the point of decision.



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Ideally, in-store screens would automatically populate the most relevant and entertaining content possible, creating a truly customer-branded experience, just like shopping online but with the in-store experience. A specific example of this is an in-store retargeting digital solution, which connects online purchase history and profile information with in-store technology such as beacons, tablets, and digital screens.

Imagine a mapped-out path to purchase that starts online, with the consumer downloading the store's mobile app and clicking on items of interest, but then the shopping basket is not converted into a sale. That 94 percent preference for in-store purchasing data point reveals a very real scenario. The customer then receives an email that promotes products they were browsing and encourages them to visit the store. All of these data points are being analyzed to help ease the customer down the path to purchase. When a customer walks into the store – which has been carefully designed to create an engaging, entertaining experience – screens dynamically update to show products that match the personal profile, browsing, and purchase history. By using beacon technology, it is possible to detect fact-based consumer profiles, derived from information in the customer database of the shop.

Screens can also show more generic content, but still tailor it to the visitor, for instance to their gender and age, and do it all in an unobtrusive way. No one has ever liked a pushy sales person in their face.

In summary, using this solution breaks down the four steps into an agile retail process. The first step is to connect the shopper-browsed items using the downloaded mobile app and immediately make a connection with the retailer and the brand. Next, as items are clicked and examined, an engagement is made, and essentially the shopper is feeding analyzable information to the retailer. By suggesting further items of interest, the connection and engagement are reinforced. As soon as the shopper enters the physical store, a new engagement is created. Every step of the way, the retailer analyzes what was the ideal content to display, through large screen and/or mobile displays. The customer can be reminded in the store, on large, eye-catching screens, of items they were interested in, and retailers can even alter the content to promote deals and offers, varied throughout the store.

A true, robust retail experience has been created. The data gathered on shopping patterns and campaign activities can help retailers understand their audience better, improving and harmonizing both the website and in-store messaging and offerings.



Tom Nix is the Chief Executive Officer of Scala.



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PRI Research Articles

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

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

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

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

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.

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



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RAI
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