

Leveraging Emerging In-Store Technologies to Impact Consumer Loyalty and Influence Purchase Behavior

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The digital signage industry continues to grow, despite a challenging economic climate. Industry verticals such as financial institutions, out-of-home, and higher education are increasing their use of digital signs. Yet retail adoption of digital signs continues to lag. There are many reasons for this. Cost is a major impediment of course. But beyond the financial considerations, there are more fundamental issues that continue to challenge retailers. Those to be considered here include a lack of understanding of how to leverage technology to enhance content relevancy and impact, and how to integrate digital signs with other emerging in-store technologies.

Digital Signage Network Industry Overview

The size of the digital signage industry is difficult to quantify with certainty. This is due in part to differing industry definitions, the immaturity of the industry, varying industry applications, and the many component parts that are involved in launching a network. For example, estimates of the digital place-based or out-of-home advertising industry exist, but we are unaware of data that quantifies the size of the captive, non-advertising supported market (i.e., financial institutions, universities, etc.). In terms of the component parts, including screens, players, installation and maintenance, content, direct labor, etc., again only a limited amount of information is available.

PQ Media, for example, in its 5th edition of the Global Digital Out-of-Home Media Forecast, found that the U.S. was the largest global market at \$2.05 billion in 2011, followed by China and Japan. Kinetic, on the other hand, in its 2011 Global Digital Out-of-Home Handbook, notes China as the largest market, followed by the U.S. at \$1.1 billion, and then the UK.

On the component side, IHS iSuppli estimates that screen shipments for the professional/public display market globally will grow by 12.34 percent in 2012 versus 14.10 percent in 2011. Compare this to DisplaySearch, which found a decline in 4th quarter 2011 shipments of 6.0 percent alone, for example. IHS iSuppli also noted that for 2011, the strongest demand was in “retail, hospitality/healthcare and government/corporate, and the same is expected for 2012.”

Markets and Markets estimates the total Global Digital Signage market generated \$3.95 billion in 2011 and \$13.2 billion by 2016, at a CAGR of 27.29 percent from 2011 to 2016. Compare this to ABI Research, which notes that the global market for digital signage, including displays, media players, software, and installation/maintenance costs, will grow from nearly \$1.3 billion in 2010 to almost \$4.5 billion in 2016.

The point behind presenting these industry estimates is to illustrate the difficulty in accurately gauging the size of the digital signage industry. Notwithstanding, we do believe that they collectively support the proposition that the general trend in the industry is positive.

This complexity in understanding industry trends also applies when considering the rate of retail adoption of digital signs. Here, we find that most estimates have been widely overstated. One firm had projected that between 2004 and 2011, retail adoption would

grow by 49 percent annually. The same firm went further and even predicted that "... 90 percent (of retailers) will have installed digital signage networks in their outlets by 2011." Yet a simple hand tally of the leading North American retail networks illustrates that these projections were not realistic.

Retailers Slow to Adopt Digital Signage

There are many reasons why retail adoption is lagging. Some of the more significant include the following:

- **Lack of strategy:** Few retailers understand what is and is not achievable with a digital signage network. This makes even a simple articulation of goals and objectives difficult. Without such direction, building a network becomes difficult. Related common mistakes include, among others, ill-defined measures of success and/or failure, poor consideration of brand positioning, and lack of adequate testing and measurement.
- **Undefined management structure:** Running a network requires resources. A management team is needed to oversee day-to-day network operations, provide content strategy oversight, schedule content, determine in-store placement, and handle technology issues.
- **Failure to integrate into other functional retail areas:** Coordination among various activities in a retail setting is necessary to the success of a retail network. This includes visual merchandising, marketing across platforms (such as the Internet, mobile, catalog, and merchandising), and IT. Depending on the nature of the organization, others may also be involved. Getting these functions to work together is one issue; finding people to take responsibility is another.
- **Lack of content planning:** A common mistake among retailers is failing to develop a content plan and budget. Here, simple planning issues will need to be addressed. For example, who will be producing content? How often will it be changed? Will advertisements be acceptable? If so, who will monitor them? Who will sell them, and for how much?

Leveraging Technology to Enhance the Medium

Technology is what makes a digital network a unique customer-facing medium. That is because a network has the ability to deliver timely, relevant messaging to consumers' in-store. The more relevant the message, the more likely the customer is to respond. But today, these networks barely come close to reaching their potential. Most networks are running continuous closed loops, and fail to even leverage the ability to day-part. But the industry will evolve through technology that will enable the creation of relevant messaging that will deliver better results. PRI has developed a model for retailers to follow to begin to address this. It is termed Behavioral Merchandising (BEM). In summary, BEM establishes a content systemization model to illustrate how information can be accumulated and processed to produce digitally delivered messages to cause a desired consumer behavior.

To leverage the inherent benefits of a network, messages will move from a traditional awareness approach toward the establishment of customer relationship-driven content. This relationship building is stimulated by the delivery of the right message at the right time, with the right offer to the right customer. This is accomplished by knowing who is in

a store or aisle at a specific time, presenting relevant content, understanding the impact a message is having upon consumers in the store, and predicting what messages and promotions will be most relevant to these consumers. To effectively execute a network at the store level requires a closed-loop, intelligent content system. Such a system will utilize information to gain knowledge of past purchase relationships, and possess the ability to predict and influence future purchase behavior by building customer trust and loyalty.

Behavioral Merchandising is defined as the methodology for understanding, predicting, and influencing consumer purchase behavior in-store by messages delivered via a digital appliance. The objective of BEM is to stimulate the consumer buying process by mass-customization of targeted messages. The BEM process involves collecting and analyzing data via mathematical models for the extraction of customer/merchandise relationships, and to further predict consumer response to targeted promotions. Moreover, BEM is an ongoing, enhanced process that coordinates content and continues to learn based upon in-store consumer purchase behavior, as well as from additional knowledge insights. The output includes strategies and processes for creating and distributing targeted advertising messages to enhance customer relationships and promotional effectiveness. The specific steps in this technology process are delineated as follows:

- Data warehousing.
- Data mining.
- Predictive promotional modeling.
- Campaign management.
- Effectiveness measurement.
- Continuous evaluation and improvement.

Here, due to space constraints, we will only expand upon the data mining process.

Data mining refers to technologies that extract knowledge and insights from vast quantities of data, such as that contained in a data warehouse. Statistical algorithms are applied to customer data including store-level information, internet/social behavior/mobile activities, and other localized information to identify merchandise buying patterns and relationships. From this, campaign decisions in respect to programming can be made and promotional targeting can be pursued.

Through the analysis and evaluation of data intersections, various insights can be realized. These can include knowledge related to consumer product/service purchase patterns, customer segmentation for the targeting of ads, the demonstration of customer merchandise relationships to feature relevant product bundles, etc. These intersections can be determined from the following:

- Basket analysis: Such analysis will reveal which items consumers tend to purchase together. This will demonstrate product relationships and product relationships among various consumer groups.
- Time-based analysis: This analysis can lead to better sequencing of ads to logical times when items are most often purchased. The sequencing of ads

around times when products tend to be purchased, such as coffee ads in the morning, simply illustrates this.

- Customer segment profiling: This process incorporates various relevant data sets to target advertising. This can be as simple as isolating local data, such as the fact that the ladies bowling league visits a store every Tuesday at 10:00 a.m., to more intensive data mining, such as leveraging customer purchase history to target ads, such as matching store loyalty card purchase information with customers who tend to be in a store at a specific time, to target ads.
- Propensity to purchase: Such analysis will identify groups predisposed to the purchase of items, even though the purchase relationship has not previously been demonstrated. For example, if consumers in one geographic region tend to buy certain products, advertising to like consumers in another region may stimulate purchase behaviors that have not previously been observed.
- Recommendation system: Such analysis will match a consumer's purchase history with that of similar consumers to make suggestions for similar item purchases. For example, Amazon.com does a good job of suggesting books that other consumers have purchased to consumers considering a specific book purchase.
- Conversion analysis: This analysis seeks to understand the relationships that have caused a consumer to buy differing products, brands, etc. From this, purchase motivation patterns can be isolated.

Following this data mining, ad play lists are executed by content management software. Continued data refinement is required for promotional ad development that leads to more intense predictive modeling.

Integration with Emerging In-Store Technologies

Digital media for customer and product communication will continue to expand to a multitude of environments and devices. These include the Internet, handhelds, in-store interactive and self-service options, as well as digital signs. Messages configured via BEM processing will be applicable to all other digital platforms to coordinate and stimulate customer performance across platforms to improve the customer experience, build loyalty, and increase sales. Here we highlight some of these platform intersections.

As ecommerce continues to grow, the implications for in-store shopping are significant. Beyond ordering merchandise, many consumers conduct product research online. For example, by educating themselves on the internet, 72 percent of consumers know which car they want to purchase and the price they would like to pay before entering a car showroom. Thus, maintaining a consistent online and in-store experience becomes important to a consumer's brand perception. In such an instance, in-store-delivered digital content should have a consistent look, feel, and message to content communicated online. In-store touch panels may be useful to enable the customer to consider various options in the presence of the physical product. As well, messages aimed at addressing customer choice (that is, buyer's remorse) may be powerful messages that are first communicated online and continue in the store.

Customer self-service is another technology that will grow in importance. Digital signage messages delivered at the head of the queue of a self-serve checkout can thank

customers for shopping the store, alert them to upcoming specials and promotions, as well as educate and entertain to reduce perceived wait-time. Interactive devices, both assisted (with the input of a sales associate) and non-assisted, also have outstanding potential. For example, programming on a touch panel in-store might import into a customer's virtual living room various curtain and furniture options while they shop for carpeting. The virtual ability to change carpeting on the fly, while the customer looks and feels the texture of different types of carpeting, will impact and enhance the shopping experience. In the dressing room, projecting a picture of a client onto a panel wall with dress after dress superimposed on her, while different environments are projected in the background (i.e., here is how that dress will look on you in front of the Eiffel Tower) will assist her in selecting the best color and style, and can ensure that even the hardcore shopper will feel like they have tried on every "virtual" dress before making a purchase.

In-store hand-held devices are becoming important for shopping and paying. It is a fact that customers who visit more areas of the store and shop in groups tend to purchase more. To encourage this behavior, digital signs and handhelds make a great team. For example, running a message on a digital sign that offers customers the ability to download a reward to their phones for visiting different parts of the store can encourage customers to go to departments they might otherwise skip. Communicating messages from phone to screen, such as a product review while a group is considering a purchase, can impact social shopping behavior and lead to more sales. Running advertisements on digital signs with the ability to download information about a product's location, availability, features, and discount coupons makes one-to-one personalized customer communication possible.

Conclusion

Customer-facing technologies will continue to evolve and impact the customer shopping experience. To execute these platforms successfully requires a lot of planning and coordination at many levels throughout the business enterprise. As these technologies continue to merge, an understanding of how to deliver relevant messages to influence consumer behavior is required to realize potential. Here, we addressed some of the planning requirements, introduced our model to produce targeted messages, and finally discussed the need for these in-store digital technologies to be integrated. As our experience with these newer technologies increases, so will the resulting impact on the customer.