How Validation Can Trump Digital Waste...

...and Generate Value across
the Digital Advertising Ecosystem

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The research demonstrates the impact of measuring "validated" ad impressions as opposed to simply counting ads that are delivered to a computer as has historically been done in online advertising measurement. "Validation" holistically measures the visibility of ads by consumers as well as the geographic accuracy, brand safety, and legitimacy of the ad delivery. Based on eighteen campaigns from twelve major brand advertisers, including Kellogg's, General Mills, Ford, Sprint, and more, the study found that there is a significant difference between gross and validated delivery, representing a substantial optimization opportunity for both buyers and sellers of digital advertising.

INTRODUCTION

Across the globe, digital media have become an important component of every advertiser's marketing mix. According to the Interactive Advertising Bureau (IAB), display-related advertising spending in the United States reached $10 billion in 2010 and has grown at 20-plus-percent rates since then, far exceeding the growth of traditional media.

Just as we've seen tremendous growth in terms of the volume of digital advertising, the interactive ecosystem, itself, also has experienced a massive evolution. From new advertising formats and placements strategies to new delivery systems and advertising technology, it has become more and more challenging for players across the industry to stay up-to-speed.

To date, digital-advertising measurement has not kept pace with the complexity of these changes. The transactional focus has been on measurement of gross impressions delivered, as opposed to those that were actually seen by consumers in a particular target.

As a result, marketers have been limited in their ability to understand how online advertising works, especially when compared to other media channels. This lack of understanding has resulted in reluctance by many marketers to fully embrace digital advertising. From publishers to advertising networks and from marketers to agencies, key players in the digital ecosystem are calling for more transparency and greater accountability as it relates to online advertising delivery.

Addressing this industry-wide call-to-action, the Interactive Advertising Bureau (IAB), the American Association of Advertising Agencies (4As), and the Association of National Advertisers (ANA)—each representing a key constituent group in the advertising market—jointly launched "Making Measurement Make Sense" (3MS). Simply put, 3MS's goal is to improve, standardize, and simplify digital media measurement. To reach this goal, 3MS has published guidelines and is conducting research to help address issues surrounding advertising delivery, measurement, and validation.

VALIDATED CAMPAIGN MEASUREMENT

In January 2012, comScore released a new service to the marketplace that addresses many of the guidelines outlined in the 3MS initiative and some additional industry issues relating specifically to advertising delivery validation. This validated Campaign Essentials (vCE) system provides an unduplicated accounting of impressions delivered across a variety of dimensions, helping to significantly improve the value of online advertising.

vCE, the authors believe, validates whether impressions delivered as part of a campaign were or were not:

- in-view (i.e., viewable by an actual consumer);
- delivered in the right geography;
- seen in brand-safe environments; and
- absent of fraud.

In addition, vCE evaluates the demographic and behavioral composition of the campaign audience to enable the advertiser to assess the degree to which validated impressions reached the campaign targets.

Importantly, all of this information is gleaned using a single advertisement tag, thus enabling a comprehensive, but holistic, view of digital advertising delivery that is unique to the marketplace. The use of a single tag is a critical component of this measurement approach, as it evaluates all impressions consistently and applies validity conditions simultaneously. This, in turn, helps eliminate most issues associated with duplicated measurement and offers a more accurate view of campaign delivery. Duplication and inconsistency typically arise when disparate data-collection sources are merged, which dramatically can impact the quality of the analyzed data.

vCE CHARTER STUDY

To better understand issues associated with display-advertising delivery and validation, 12 leading marketers participated in a vCE Charter Study, a U.S.-based program. The findings helped to pave the way for a more accurate measure of campaign delivery that relies on validated impressions, rather than served impressions (or gross impressions), which are currently the established currency for online advertising measurement. Validated impressions also can be used to report validated gross and targeted rating points (vGRP/vTRP).

Ideally, this research will help to promote the broad adoption of new standard measures that reflect the true delivery of a campaign (per the 3MS guidelines) and will also help generate greater visibility and transparency across the industry and across media.

Throughout 2012, similar charter programs will be rolled out in other global markets, including Canada, Latin America, Asia, and select European countries.

Parameters and Methodology

- **Study participants**:
  – AllState
  – Chrysler
  – Discover
  – eTrade
  – Ford
  – General Mills
  – HTC
  – Kellogg's
  – Kimberly-Clark
  – Kraft Foods
  – Sprint
- **Time period**: December 2011
- **Total campaigns**: 18 campaigns
- **Media placements**: 2,975 media placements. All advertisements were display, delivered via iframes
- **Site domains**: 380,898 site domains
- **Ad impressions**: 1.8 billion.

For the purposes of this report, all findings are presented in aggregate—not by individual campaign—to protect the confidentiality of client data. Findings are reported by total campaign and by publisher level, placement level, and/or creative level.

It also should be noted that because vCE Charter Study participants included major branded advertisers who inherently buy more premium inventory than the average online marketer, the study findings are not necessarily representative of the overall online advertising market. In fact, because these particular advertisers generally engage in high-end, premium campaigns, the findings may represent "best-case scenarios," rather than the norm.

Key Metric Definitions

- **In-view:** "In-view" is defined as an advertising impression with at least 50 percent of the advertisement's pixel in the user's viewport for 1 second or more. This definition is consistent with current working standards outlined as part of the 3MS initiative. The parameters for definition of in-view can be changed easily to accommodate any change in industry standards.
- **Audience:** The ongoing vCE Charter Study program uses the comScore panel of 2 million global consumers to report on audience delivery with person-level insights. This means that the current study was able to validate delivery to target audiences based on traditional demographics and more than 80 behavioral segments.
- **Geography:** Although vCE is available globally, with regional data available in some countries, for the purposes of the vCE Charter Study, all campaigns were validated based on delivery in the United States.
- **Brand safety:** Advertising delivered on sites deemed not appropriate for brand advertising due to objectionable content are considered to be in violation of brand safety. The definition of "objectionable content" is discussed within the Brand Safety section of the paper.
- **Fraud:** Fraud was measured by counting advertising impressions served to non-human agents (as per the IAB spiders and bots list) and advertisements that were served to users via illegitimate methods or content. These two very basic types of fraud detection were included in the vCE Charter Study to establish a baseline.

The goal of the vCE Charter Study was to quantify the incidence of sub-optimal advertising delivery across these key dimensions for the advertised brands and, in so doing, frame the relative importance of each for the industry. Although it is possible to optimize campaigns in-flight to eliminate waste and generate better advertising outcomes, this type of optimization was not deployed as part of the study, as it would have detracted from the study's objective of determining a baseline of delivery prior to in-flight optimization.

EXECUTIVE SUMMARY OF FINDINGS

Key findings from the vCE Charter Study include:

- **In-view rates are low**
  The study showed that 31 percent of advertisements were not in-view—meaning they never had an opportunity to be seen. There was also great variation across sites where the campaigns ran, with in-view rates ranging from 7 percent to 100 percent on a given site. This variance illustrates that, even for major advertisers making premium buys, there is a lot of room for improvement.

- **Targeting audiences beyond demos can be powerful**
  Generally, campaigns that had very basic demo targeting objectives performed well with regard to reaching those targets. For example, those with an objective of reaching people in a particular broad age range did so with 70 percent of their impressions. Predictably, as additional demographic variables were added to the targeting criteria (i.e., adding income and/or gender filters), accuracy rates of the advertising delivery declined. The results also showed that 37 percent of all impressions were delivered to audiences with behavioral profiles that were relevant to the brand (i.e.,

consumers with demonstrated interests in categories, such as food, automotive, or sports). One campaign had 67 percent of its impressions viewed by the target behavioral segment.

- **The content in which an advertisement appears can compromise its message**
  Of the campaigns analyzed, 72 percent had at least some impressions that were delivered adjacent to objectionable content. Although this did not translate to a large number of impressions on an absolute basis (141,000 impressions across 980 domains), it is important to note that 92,000 people were exposed to these impressions. This demonstrates that even with the most premium of executions, brand safety should be an utmost concern for advertisers.

- **Fraud exists and should not be ignored.**
  Fraud is an undeniably large (and growing) problem in digital advertising. The results of the vCE Charter Study in the United States showed that an average of 0.16 percent of impressions across all campaigns was delivered to non-human agents from the IAB spiders-and-bots list. Although this percentage might appear negligible, there are two important considerations to keep in mind. Only the most basic forms of inappropriate delivery were addressed in this study. When additional, more sophisticated types of fraud are considered, the problem will only get larger. Like brand safety, fraud should be an important concern for all advertisers.

- **Digital-Advertising Economics: Who's Really Winning?**
  The study showed that there was little-to-no correlation between CPM and value being delivered to the advertiser. For example, advertising placements with strong in-view rates are not getting

higher CPMs than placements with low in-view rates. Similarly, advertisements that do well at delivering to a primary demographic target are not receiving more value than those that are not. In other words, neither advertising visibility nor the accuracy of demographic target delivery is currently reflected in the economics of digital advertising.

DETAILED VCE CHARTER STUDY FINDINGS
In-View

One of the most fundamental aspects of advertising measurement, particularly as it relates to cross-media, is the need for a solid, consistent method of determining whether a consumer had an opportunity to see (OTS) an advertisement. In television, once an advertisement has been delivered in a program, the advertisement "plays"—meaning that the consumer had an OTS it. Although the person might not have been in the room to see the advertisement, the industry accepts the notion that the opportunity was still there and, therefore, it gets counted as an OTS. Alternatively, if the television were turned off, there would not have been an opportunity for the advertising to be seen.

Because the advertising industry has accepted OTS as a standard metric, many marketers rely on it to build cross-media campaigns and to assess the effects of advertising across channels. Another reason an OTS is a particularly important metric: if an advertisement does not have an opportunity to be seen by a real user, it cannot possibly deliver its intended effect.

When compared to other forms of media, digital advertising has unique characteristics relating to an advertisement's opportunity to be seen. To date, the standard has simply been to measure whether advertisements were served to a page. There are many reasons, however, why a served digital advertisement might not result in someone having an opportunity to see it.

For example, consumers often land on a particular page and then quickly scroll down to consume content before the banner advertisement at the top of the page has had a chance to load. An alternative scenario: when a user remains at the top of the page, she or he may never scroll to the bottom, where many advertisements have loaded.

Given these scenarios, which inherently result in many advertising impressions being delivered but not seen, the industry has begun to evaluate ways to accurately measure viewability and to improve in-view rates to avoid wasted advertising spend. 3MS proposed a standard definition of "in-view": At least 50 percent of the pixels of the advertisement must be in-view for a minimum of 1 second.

Aside from adhering to the 3MS proposed working definition of viewability, in-view measurement also must account for all advertising-delivery formats for it to be accurate. There are three distinct advertising-delivery formats from which publishers can choose to deliver advertisements:

- **Format I: delivery of an advertisement directly on a publisher site**
  In this instance, the publisher places a JavaScript advertising tag on its page with the marketer's advertising tag in the same domain as the site content.

- **Format II: same-domain ("friendly") iframes**
  Many sites choose to use an iframe to deliver advertising, as such architecture can help to prevent any unwanted content associated with the advertisement from damaging the main site content. Same-domain iframes—also known as "friendly" iframes—typically refer to instances when a site allows the iframe to communicate directly with the rest

of the page, which, in turn, facilitates the measurement of the iframe location when the page is rendered on the viewable screen. This helps to determine whether the advertisement is in-view and for how long.

- **Format III: Cross-domain ("unfriendly") iframes**
  If a site chooses not to allow an advertisement to communicate directly with the page, it reserves a place for it in an iframe, which, in turn, summons a third-party domain to serve the advertisement. This severed communication link presents a daunting challenge not just to the measurement of the iframe's position on the page but to the visibility of the advertisement.

Importantly, 100 percent of the vCE Charter Study advertising impressions were delivered in iframes, including a majority of "cross-domain" iframes. In fact, the U.S. vCE Charter Study was the first industry study to measure and report on

in-view rates for advertisements delivered via all iframes, (including those delivered via the notoriously difficult-to-measure cross-domain iframes). This is particularly important given that comScore research shows that 61 percent of all iframed ads are delivered via these unfriendly iframes.

In-View by Campaign and Site

Across all campaigns in the U.S. vCE Charter Study, the average in-view rate was 69 percent (See Figure 1). The in-view rates by campaign, however, showed significant variation—a range of 55 percent to 93 percent.

This indicates that, on average, 3 of 10 advertisements were not seen and, therefore, were wasted.

A site-level view across campaigns revealed even more variation in in-view rates (See Figure 2). On one site, 100 percent of the advertisements were in-view. For this particular site, all the advertisements were placed in the center of the homepage; scrolling was not required to reach the remainder of the content. For another site,
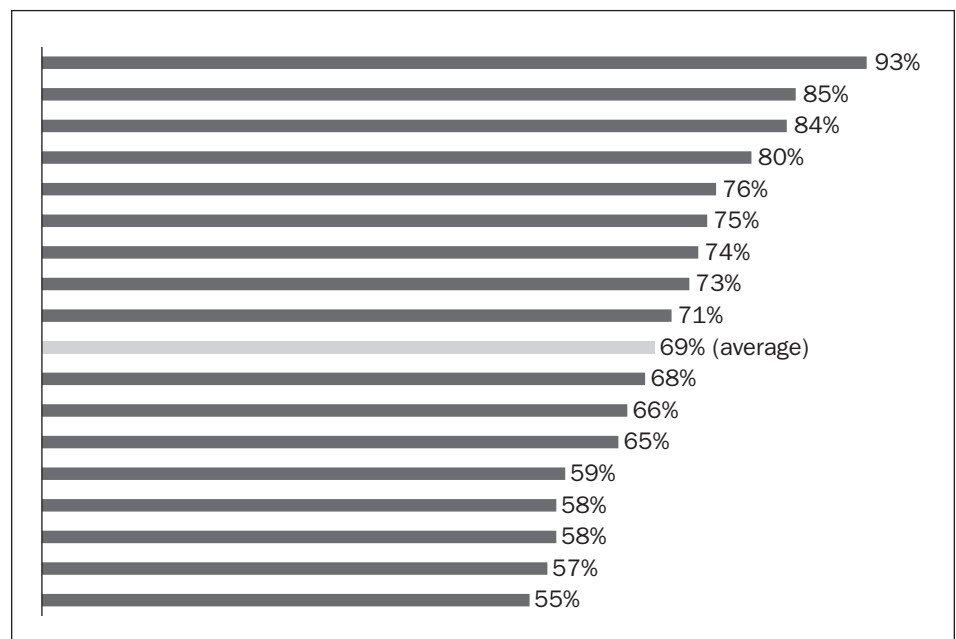

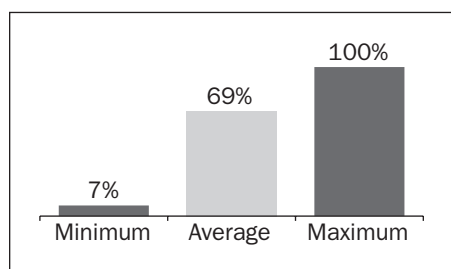**Figure 1** Percent of Advertisements Delivered In-View by Campaign

Figure 2 Percent of Advertisements Delivered In-View by Site

only 7 percent of the delivered advertisements were in-view, meaning that 93 percent of all advertisements served on that site never had the opportunity to be seen and, therefore, were completely wasted.

A simple economic analysis puts yet another quantitative metric in place. As only one of every 14 advertisements on that site had the opportunity to be seen, if a marketer paid a $1.00 CPM to deliver advertising on that site, the effective CPM would have been $14.00. Although a site with a $1.00 CPM may seem like a bargain, when waste levels on the site are as high as 93 percent, it effectively can become one of the most expensive placements in a media plan.

To better understand in-view rates, the U.S. vCE Charter Study analyzed results by:

- placement (premium, standard, etc.);
- relative size of site (overall and within category);
- content type (news sites, sports sites, etc);
- ad size (300 × 250, 728 × 90, 160 × 600); and
- position on the page (above-the-fold versus below-the-fold).

In-View by Placement
Even within a given site, in-view rates can vary significantly by placement.

A traditional content site, for example, ran several vCE Charter Study campaigns. Across the various placement locations on this site, the in-view rate varied from 23 percent to 95 percent. The placements appeared to fall into three distinct levels of in-view (See Figure 3):

- The largest number of placements delivered more than 80 percent of the advertisements in-view—well above the vCE Charter Study average (69 percent). Such placements could be considered high-viewability inventory.
- Approximately one-third of the placements delivered advertisements between 66 percent to 75 percent in-view, which indicates they were on-par with the vCE Charter Study average.
- A small number of placements, however, dragged down the site's average, given their very low in-view rates. With the use of in-flight optimization (which was not deployed for the purposes of the vCE Charter Study), these sub-par in-view rates could have been identified

early and removed from the delivery. In addition, these data suggest an opportunity for this publisher to reconfigure the page layout to ensure that more advertisements are seen.

In-View by Relative Size of Site
An important question relating to viewability is how in-view rates vary based on the size of a site.

To begin to answer this question, the vCE Charter Study created a separate grouping of average in-view rates based on site size. Using comScore Media Metrix rankings within specific content categories (i.e., sports, news, food, health sites) as a proxy for site size, average in-view rates were calculated based on Top 50, Top 100, Top 500, and long-tail sites by category.

Within these content categories, in-view levels decreased as the site rankings decreased. In fact, the difference in in-view rates between Top 50 sites in a category versus the long-tail sites in a category was a full 16-percentage points (See Figure 4).
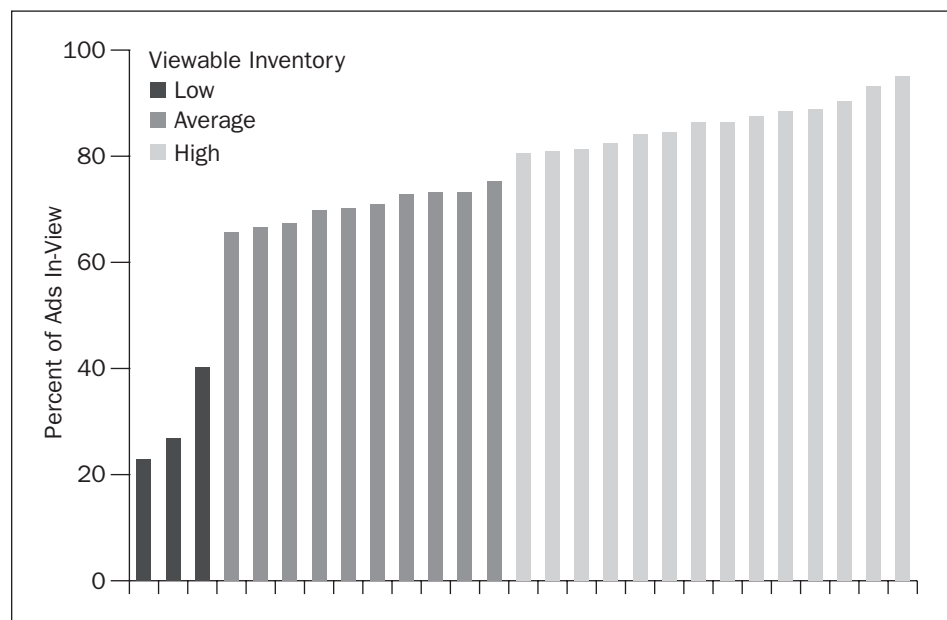

Figure 3 Percent of Advertisements Delivered In-View Rates for Individual Placements Across a Traditional Content Site
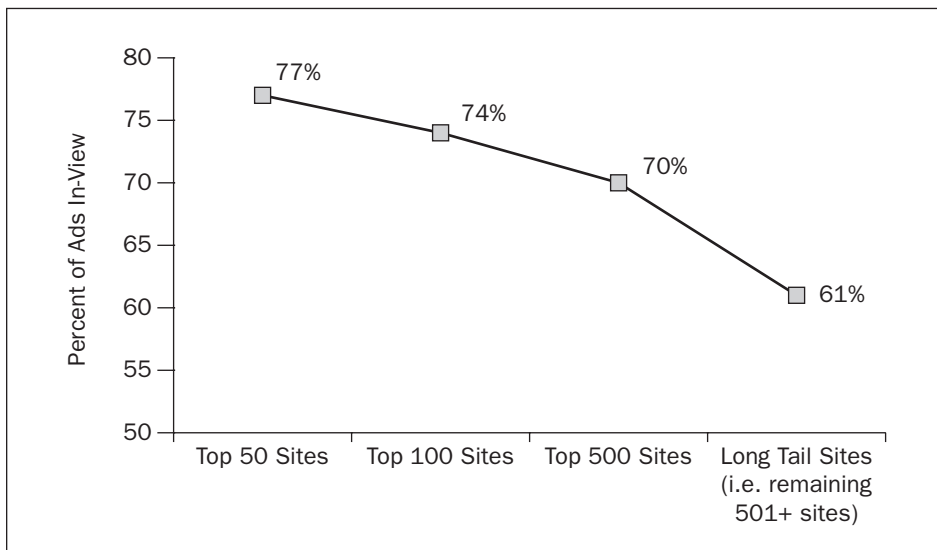
Figure 4 Percent of Advertisements Delivered In-View Within a Given Content Category

This finding suggests that large sites within a content category do a better job than smaller sites at ensuring the advertisements they deliver to consumers are actually viewable. Further analysis is needed to identify exactly why this is the case. A few potential options may include the fact that the quality of the site and the content within a site is stronger on these more popular sites.

In-View by Content Type

In-view rates also showed variation by content type. For example, Coupon sites delivered relatively strong in-view rates (89 percent), whereas Pets sites (27 percent) struggled, delivering slightly more than a quarter of advertisements in-view. This variation across categories, in part, might reflect the common layouts among sites of a similar genre (See Figure 5).

In-View by Advertisement Size

The most common advertisement size used in the vCE Charter Study was the Classic Leaderboard (728 × 90), followed by the Medium Rectangle (300 × 250) and the Wide Skyscraper (160 × 600).

The Classic Leaderboard delivered the strongest in-view rates (74 percent), but there was significant variance across all sites with a range of 7 percent to 93 percent using this size.

The Medium Rectangle format (300 × 250)

delivered 69 percent of its advertisements in-view, and the Wide Skyscraper (160 × 600) delivered the lowest portion of advertisements in-view (66 percent).

Although further research is required to better understand the driving factors for differing in-view rates across advertisement sizes, one potential cause may be the relationship between the sizes of advertisements and their typical placement on a Web page. Case in point: wide Skyscraper advertisements run vertically along a Web page, making it more difficult for 50 percent of its pixels to be in the user's viewport for at least one second (See Figure 6).

In-View by Position on Page

In discussions of viewability, there often is a misperception that advertisements delivered "above-the-fold"—on the top portion of a viewer's screen—are seen but that advertisements delivered "below-the-fold" are not. Although the quality of in-view rates can vary from above-the-fold versus below-the-fold advertisement
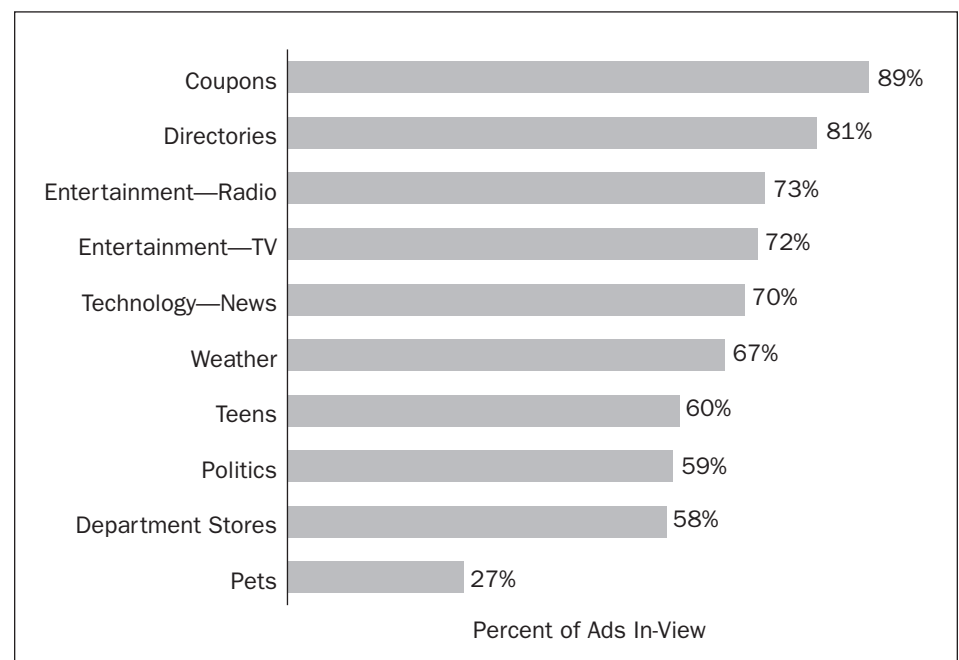

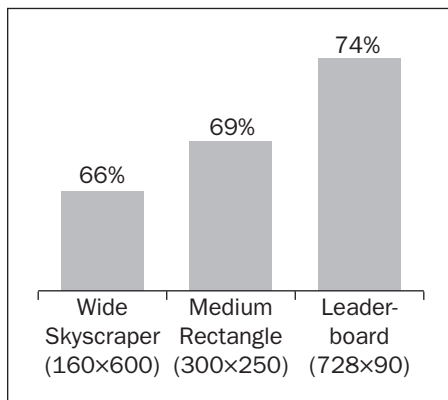**Figure 5** Percent of Advertisements Served In-View by Select Content Types

Figure 6 Percent of Advertisements Delivered In-View by advertisement Size

Figure 7 Percent of Advertisements Delivered In-View by Location on Page

delivery, the vCE Charter Study results helped dispel some of these myths.

Surprisingly, the findings demonstrated that some advertisements delivered above-the-fold were not seen because users quickly scrolled past them before the advertisement had a chance to load. Alternatively, many advertisements placed below-the-fold delivered a high opportunity to be seen (See Figure 7).

The implications of these findings are far-reaching, and there are broad applications for both buyers and sellers of online media. Specifically:

- Publishers, for example, should monetize all advertisements on their site that deliver an opportunity to be seen, regardless of where the advertisement is placed. This might mean that inventory below-the-fold can be priced as premium as long as the publisher can prove it was viewed.
- Marketers can look for inventory that is currently identified as remnant but that still delivers attractive in-view rates. Much of this inventory resides in exchanges and can be better optimized by taking into account its placement-specific viewability potential.
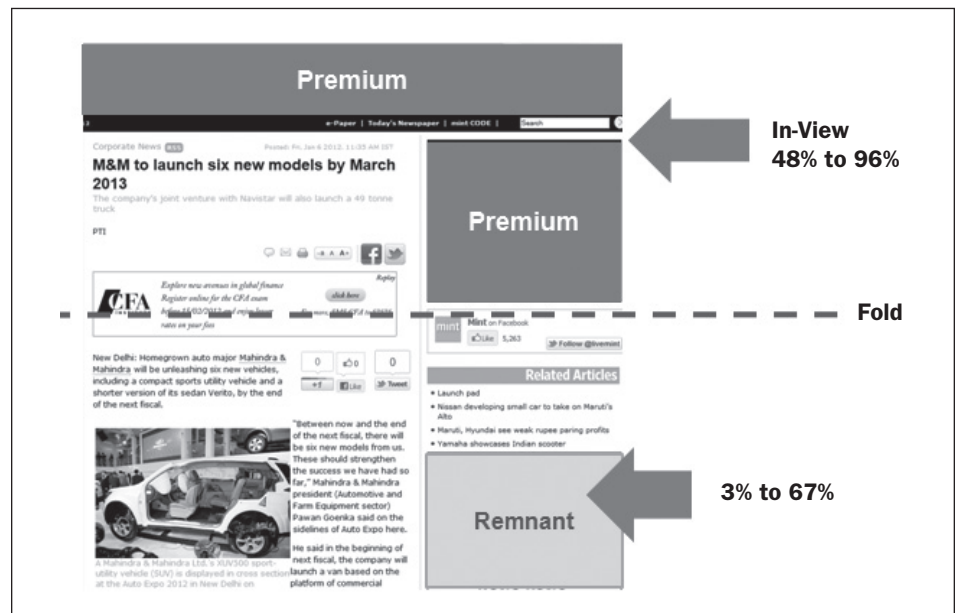
In-View and Cost

Finally, the current study explored the relationship between the cost of the advertisement and the in-view rate. Eight of the vCE Charter Study campaigns provided cost data for use in the analysis. Some campaigns were branding-oriented; others were direct response. In total, 300 unique advertising placements had accompanying CPM data.

The analysis showed there was virtually no correlation between the CPM paid for the advertisement and whether it was in-view (correlation coefficient = 0.19). This low correlation clearly demonstrates that sites with the ability to garner strong in-view rates are not being compensated fairly. Without solid in-view data, current pricing fails to account for differentials in in-view rates.

Understanding the actual delivery by both site and placement is critical for marketers seeking to value media based on its ability to reach a real user (See Figure 8). Publishers and marketers with detailed in-view data are better able to value the placements that provide true value and price them accordingly.

AUDIENCE

Defining Target Audience

Marketers invest in digital with the goal of buying advertisements that reach a desired audience. Unfortunately, the extent to which an advertisement reaches its target can vary greatly based on many factors. The current study evaluated audience delivery in two separate (but important) manners:

- **Traditional demographics:** Delivery of advertising impressions to traditional demographic targets, including age, gender, household income, and the presence of children in the home.
- **Behavioral segments:** Delivery of advertising impressions to behavioral segments based on observed online behaviors (i.e., food enthusiasts, sports fans).
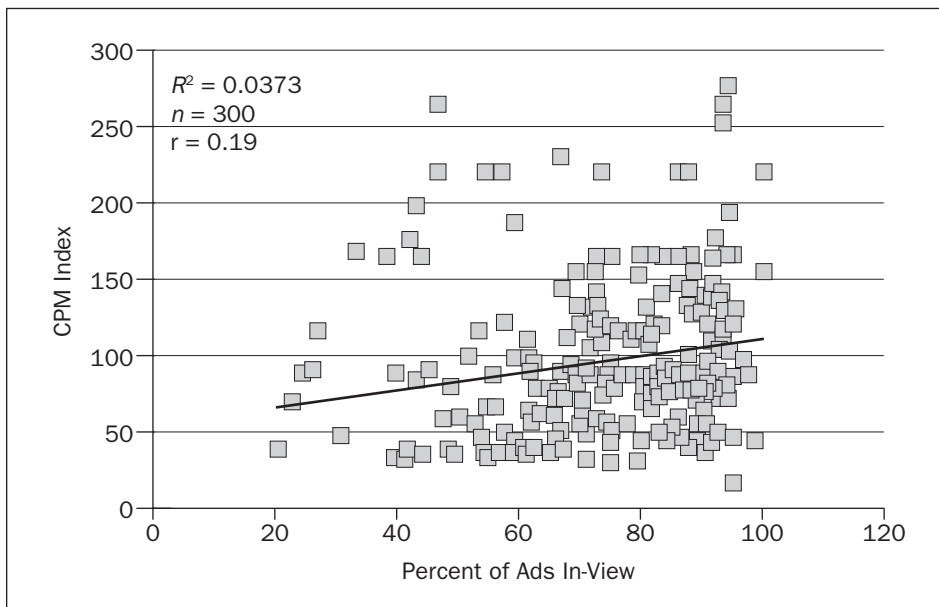
Figure 8 Correlation of In-View Rates and CPM

Validating advertising delivery based on traditional demographics is the most common approach. Understanding how well an advertisement reached a relevant behavioral target, however, potentially is more valuable, as it offers perspective on not just *who* the people are but on *what* they are interested in… especially as it relates to the advertised product.

To evaluate the accuracy of advertising delivery, vCE Charter Study participants identified their target audiences for each campaign. That group could include one or any combination of the traditional demographic attributes and behavioral segments. Behavioral segments are composed of the heaviest consumers (top 50 percent) of topic-specific Web content (i.e., sports, food, cars, personal electronics, or travel). To begin the process, vCE Charter Study participants identified a primary behavioral attribute from 80 different online behavioral profiles (See Figure 9).

The majority of campaigns included age in their target set—not surprising, given its wide use as a desired attribute across all forms of media. Interestingly, however, the

ability to reach a behavioral attribute was the next most common approach, demonstrating the growing importance of some marketers' desire to reach people based on more than demographics. It also should be noted that the use of behavioral-campaign

reporting primarily reflects digital interests. As such, it certainly is a compelling value proposition for marketers trying to connect more closely with consumers who exhibit interests that are aligned with and/or related to the advertised brand.

Audience Targeting by Traditional Demographics

Across all vCE Charter Study campaigns, there was quite a bit of variance in the advertisers' ability to reach their desired target audience. As one might imagine, the more complex the target (i.e., the more demographic targeting variables included in the target set), the more difficult it was for the campaign to deliver on its promise (See Figure 10).

Campaigns with a target audience that included one demographic variable (e.g., "25–54 years old") delivered impressions to the target an average of 70 percent of the time. In cases where there were two variables (e.g., "25–54 years old" and "women"), the accuracy of targeting decreased to an average of 48 percent; with three variables
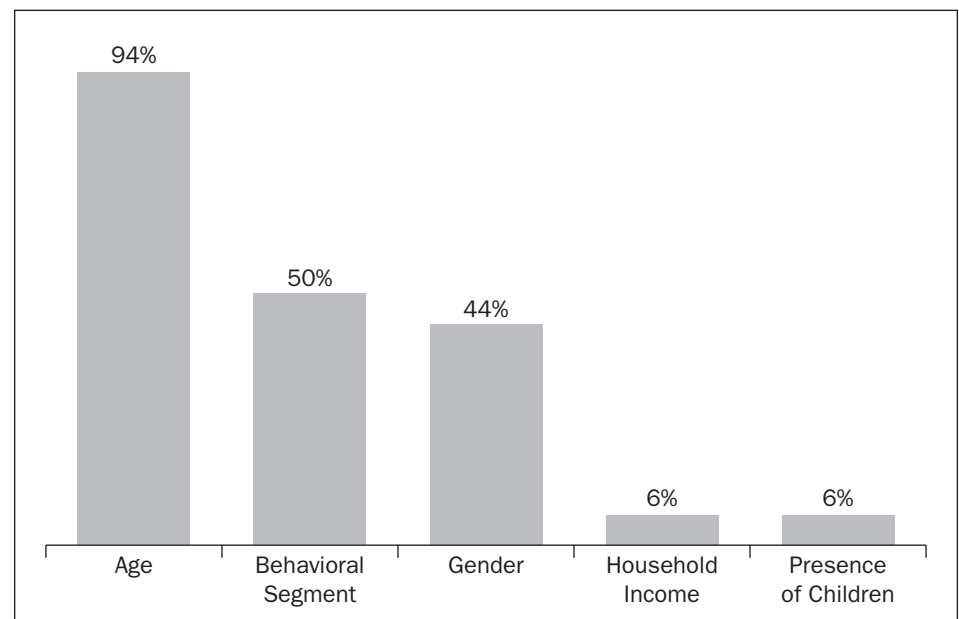

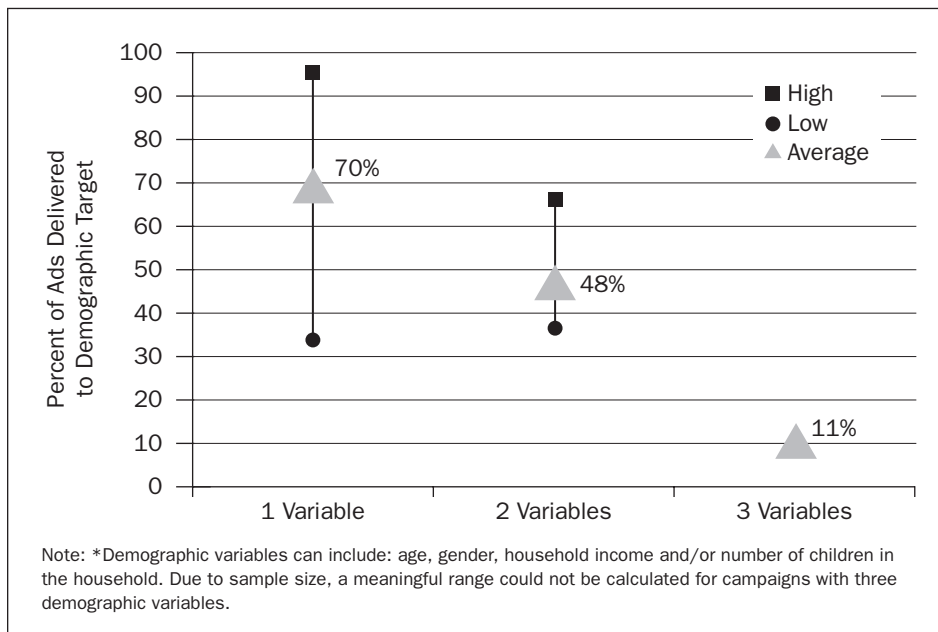**Figure 9** Percent of Charter Campaigns Using Desired Attribute(s)

Figure 10 Percent of Advertisements in Demographic Target Based on Number of Targeting Variables*

(e.g., "25–54 years old", "women", and "with children under 18 in the home"), the average was 11 percent.

Audience Targeting by Behavioral Attributes

In addition to looking at the audience in terms of its demographics, online behaviors of people who were exposed to the campaign also were measured. Specifically, campaigns were measured against their ability to deliver ad impressions to behavioral segments based on observed online behaviors. In some cases, specific cookie-based behavioral targeting was used in several placements in a campaign. In other cases, marketers wanted to reach their desired behavioral audience through traditional media placements—for instance, delivering an advertisement alongside content of interest to their audience.

If executed correctly, however, behavioral targeting can be a very powerful, efficient, and effective means of delivering a brand message to a valuable audience. Across all executions, the average campaign reached its behavioral audience target 36 percent of the time, with a wide range from 23 percent to 67 percent (See Figure 11).

One obvious conclusion from this finding may be that online behavioral targeting has limitations as an accurate or effective means of reaching audiences online. One primary reason for these limitations
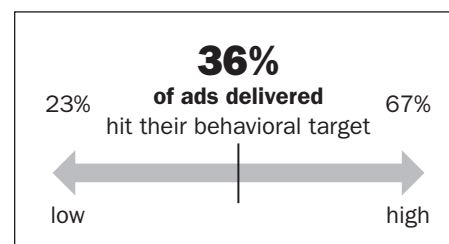

Figure 11 Percent of Advertisements Delivered to the Primary Behavioral Attribute by Campaign

includes the cookie-based nature of behavioral segmentation.

For example, a user visits a travel site that shares its information with data providers on the basis of the cookie for that browser/machine combination. When that cookie is observed later at some other site, however, there is no guarantee that it represents the same user. There also is concern about the freshness of the information. Someone may have visited a travel site 6 weeks ago and, now, they no longer care about traveling. Finally, one visit alone may not be sufficient to identify a serious travel intender.

As a result, one must be careful about the accuracy of the targets they purchase, which is precisely why audience validation and in-flight optimization should be a critical part of the campaign management process. If these campaigns were to have leveraged in-flight optimization (which they explicitly did not for the purposes of the research), it is likely that these numbers would have been dramatically higher.

It also is important to note that, in some campaigns, the behavioral-attribute target actually did a much better job at delivering on-target impressions than the demographic group, suggesting that using demographics alone to evaluate campaign success is not always sufficient.

For example, one campaign for a CPG product that had a demographic target of women between the ages of 25 and 54 years served only 37 percent of impressions to that group. Some 67 percent of the impressions, however, went to people who were heavy users of food and cooking content online. With demographic-based evaluation alone, this campaign delivery would have appeared unsuccessful.

A separate analysis of an automotive campaign in the vCE Charter Study helps to shed light on the value of behavioral campaign reporting and its ability to reveal a deeper portrait of the type of consumer
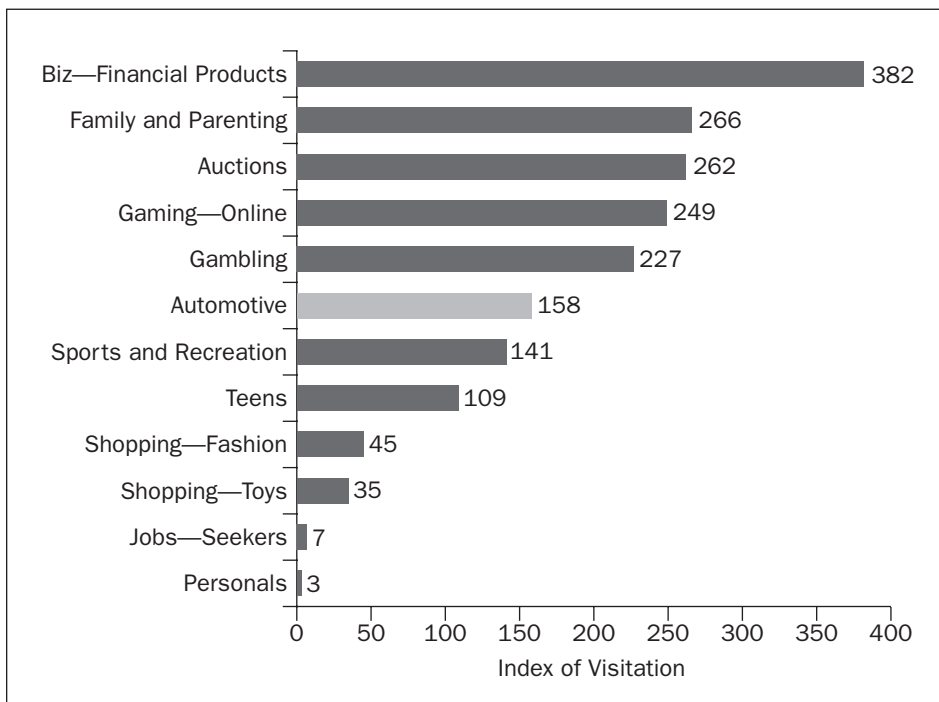
Figure 12 Index of Online Behavioral Activity by Category for Consumers Exposed to an Automotive Campaign

exposed to the campaign. The analysis involved creating an index of visitation to online site categories for consumers exposed to the advertising campaign compared to the average Internet population. The findings revealed that the exposed group over-indexed (158) on automotive content, meaning the audience reached by the campaign was 58 percent more likely than the average Internet user to be a significant consumer of online automotive content (See Figure 12). This is a positive indication that the campaign reached the right audience regardless of the demographic composition.

Another important finding was that the audience reached in this campaign also over-indexed significantly in categories relating to financial products (382) and family/parenting (266). This information can be used to develop creative messaging that speaks to the interests of the audience, such as showcasing a family vehicle or financing information in advertisements.

Again, it is important to note that, for the purposes of the vCE Charter Study, these campaigns were not optimized in-flight,

meaning that no corrective action was taken throughout the course of the campaign to improve the extent to which these advertisements were able to reach their target audience. With in-flight optimization, it is highly likely that all campaigns would have seen improved on-target delivery rates for both their demographic and behavioral targets.

Audience Targeting and Cost

Using available CPM data (as outlined in the prior In-View section), the correlation between CPMs and the accuracy of demographic targeting (primary audience only) was analyzed as part of this research.

The findings revealed a very small correlation (correlation coefficient = 0.18), suggesting that there was little or no relationship between the amount paid for an advertisement and its ability to reach the desired demographic target audience (See Figure 13).

Before drawing macro-conclusions about this finding, however, it is important to examine some of the potential reasons
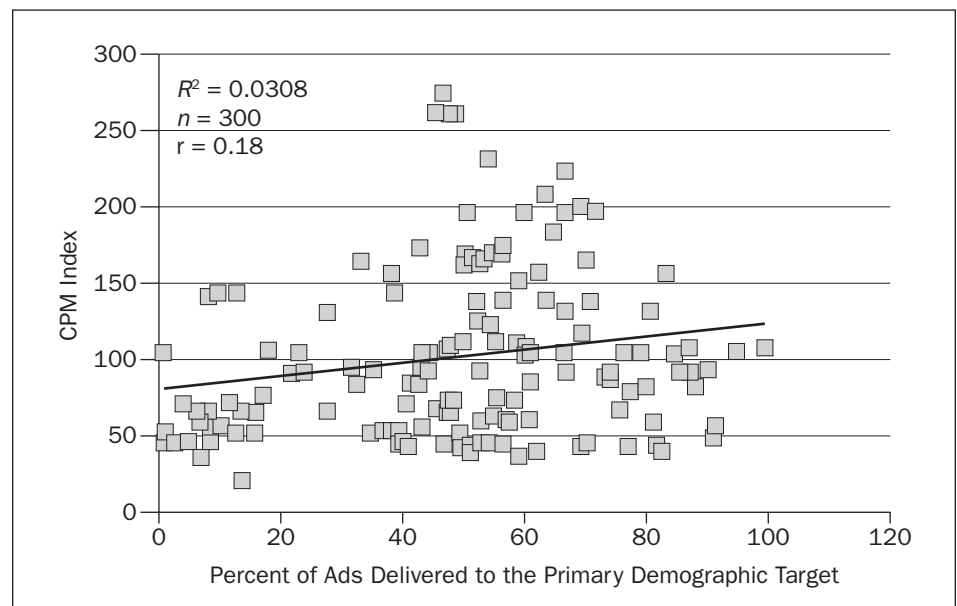

Figure 13 Correlation of percent of Advertisements Delivered to Primary Demographic Target and CPM

for this lack of correlation between these two variables:

- Some marketers simply might not be building campaigns with the core objective of reaching a specific demographic; instead, they may be buying media based on its ability to hit certain behavioral segments.
- Another very real issue is the accuracy of cookie-based targeting data. As noted, there are myriad companies that provide these data and very large variation in the quality of the data. Unless cookie-based audiences are verified against a credible third-party source, it is possible that they are missing the mark.

In the vCE Charter Study, demographically cookie-targeted advertising placements reached their desired demographic 14 percent to 96 percent of the time—a wide variation on the quality of demographic cookie data.

Regardless of the cause, it is clear that, at present, the market is not rewarding advertisements that deliver to the intended audience compared to those that did not. This represents an opportunity for both advertisers and publishers—an occasion rendered even more valuable with transparency into the accuracy of delivery and the ability to optimize in-flight to avoid waste.

GEOGRAPHY
Defining Geographic Target
When delivering advertisements on television, it is relatively easy to ensure they run in their desired geographic market, because broadcast markets have defined geographic borders. The Internet, conversely, is borderless; its users can access specific content from anywhere in the world. As a result, controlling geographic distribution of advertising can be challenging.

For marketers trying to maximize every dollar of their advertising budget, it is critical that their advertisements are delivered in the desired market where their products are actually sold. Accordingly, geographic validation was an important component of the vCE Charter Study.

Geographic Targeting: Overall and by Campaign
All campaigns in the vCE Charter Study had a geographic target of the United States. In total, about 4 percent of impressions were delivered outside of the United States. Of impressions delivered outside of the target, nearly half were served in Canada; the remainder spread across Europe, the Caribbean, Asia-Pacific, and Latin America (See Figure 14). This finding suggests a good portion of the wasted impressions were delivered to people living in countries whose native language is something other than English.

When examining the results on a campaign-by-campaign basis, it is interesting to note the large range of impressions delivered outside the target geography. Although one campaign performed flawlessly, another wasted about 15 percent of its impressions (See Figure 15). Given that the Internet provides a wealth of geo-location information—and given the campaigns' broad target of "inside the United States"—this large range was somewhat surprising.

In such cases, an inability for an advertisement to be delivered in its intended geography often is *not* a result of poor targeting capabilities but rather due to error in complex advertising buying and selling processes.

Delivery of advertisements outside a given geographic target often occurs for two primary reasons:

- **Communication error**: In some cases, the site serving the advertisement is not aware of the intended geographic target. This occurs when the requirement does not appear on the insertion
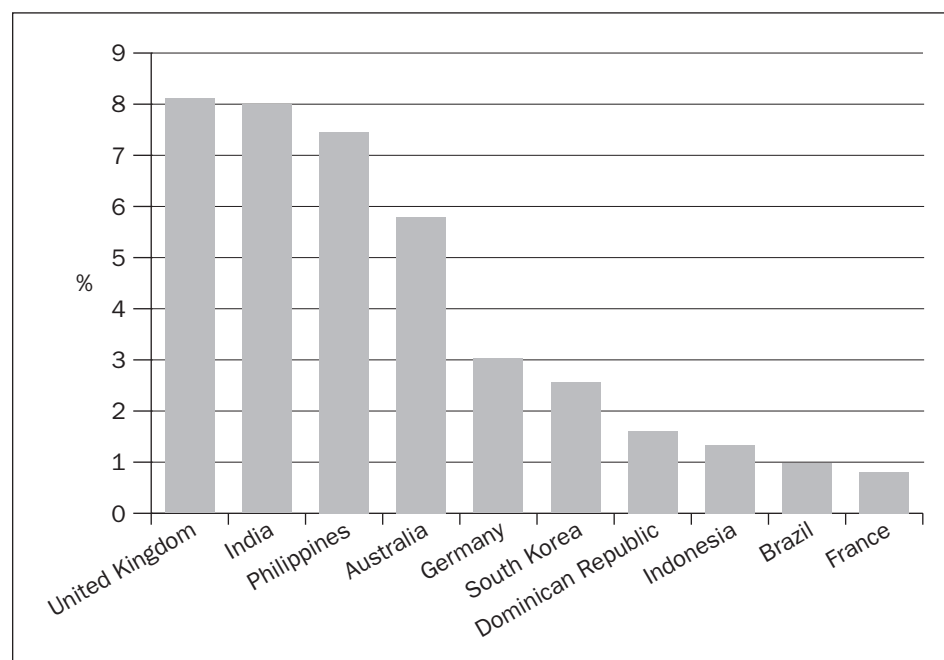

Figure 14 Percent of Advertisements Delivered to Geographic Market Among All Impressions Delivered Outside of North America
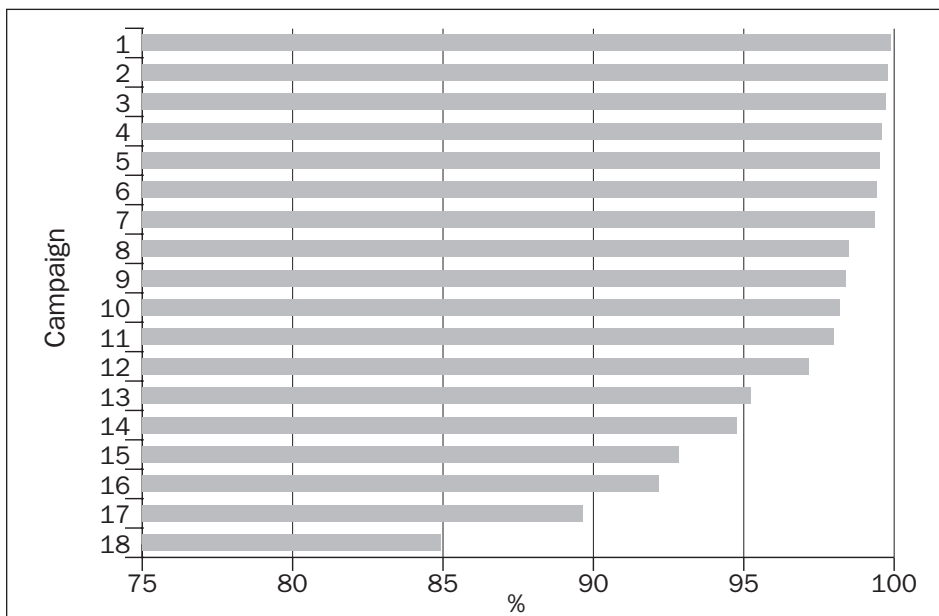
Figure 15 Percent of Advertisements Delivered in Geography by Campaign

order (IO), which authorizes the purchase of impressions from the site and determines the characteristics of the advertisements to be served. Such misfires easily can be remedied by ensuring geographic requirements are a standard part of IO contract templates.

- **Human error**: To target an advertisement to a given geography, the requirement must be programmed into the advertising server that delivers the advertisement. Occasionally publishers miss this step. Or in rare cases, the wrong geography inadvertently is selected.

As long as geography is specified in the IO, performance can be optimized in-flight in two different ways, specifically:

- Real-time alerting notifies sites when advertisements are being served outside the desired geographic region so that corrective action can be taken, and
- advertising-blocking technology can help prevent advertisements from being

served outside a geographic target. Such techniques generally are reserved for instances where serving an advertisement outside a specified geography may create privacy or legal concerns. And, in those instances, in lieu of in-flight course correction, absolute prevention must be employed. These alert and blocking features can protect both marketers and publishers from wasting inventory and from lowering the overall effect of a campaign.

BRAND SAFETY

All marketers are concerned about the relevance of the content in which their advertisements are delivered. When brands spend money on advertising, they need assurance that their advertisements will not run next to content that is at odds with the brand they are trying to build or the equity they already have established.

In this context, "objectionable content" generally can be categorized into two types, the first rather objective and the second more subjective and brand-specific:

- **Adult-content and/or hate sites:** Almost all brands want to avoid having their advertisements run on adult-content or hate sites. Although there might be some differences of opinion on exactly what sites fall into these categories, there generally are agreed-upon, industry-endorsed lists that define these.

- **Brand-specific criteria:** There are topics, issues, and/or content with which certain brands do not want any kind of association. And online adjacencies with such material may directly conflict with and/or detract from the advertising's objective.

  For example, consider a major airline. For obvious reasons, an advertiser in this space might not want the brand's advertisement to appear next to an article about significant plane delays. For countless other advertisers, of course, delivering an advertisement to a consumer in this content would be completely benign.

Concerns relating to both categories are very legitimate. Unfortunately, due to the complex chain of online advertising delivery systems of advertising networks and exchanges, it is not always clear where an advertisement will appear.

Brand Safety on Adult-Content and Hate Sites

To begin to understand the extent to which advertisements are delivered in content deemed inappropriate, the vCE Charter Study quantified the incidence of advertising delivery on adult-content and/or hate sites. The study used a standard definition of "objectionable content," based on historical data of sites/categories most commonly identified as being "not brand safe" by leading advertisers (See Table 1). The measurement was applied to all campaigns.

TABLE 1

Categories Deemed "Not Brand Safe" for Purposes of vCE Charter Study

- Piracy and Copyright Theft
- Anonymizer
- Child Abuse Images
- Criminal Skills
- Hacking
- Illegal Drugs
- Marijuana
- Spam URLs
- Botnet
- Command Control Centers
- Comprised and Links to Malware
- Malware Call-Home
- Malware Distribution Point
- Phishing/Fraud
- Spyware and Questionable Software
- Peer-to-Peer
- Torrent Repository
- Hate Speech
- Pay to Surf
- Nudity
- Pornography
- Sex and Erotic
- Content Server
- Private IP Address
- Redirect

To the surprise of many advertisers in the vCE Charter Study, 72 percent of the campaigns had at least some impressions served in this type of adult/hate inappropriate content, which spanned a total of 980 sites (See Figure 16). The good news was that the actual percentage of impressions involved was less than 0.01 percent.

The study also did show, however, that 92,000 people saw these advertisements, meaning that if some of these people were either loyal or prospective customers, the placement could have been counterproductive and/or problematic for the brand.
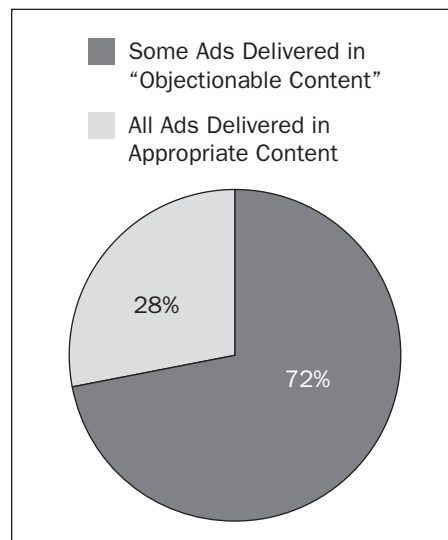

Figure 16 Percent of vCE Charter Study Campaigns with Impressions Delivered Next to Content Deemed "Not Brand Safe"

Despite the relatively low overall incidence of advertisements appearing next to inappropriate content, these findings still might be unsettling to advertisers. Even one advertisement impression delivered in the wrong environment can damage a valuable consumer's feelings toward a brand.

With the increasing use of social media, a snapshot of a marketer's advertisement in an inappropriate environment can quickly go viral, exposing many more people to the unintended, but negative, association of a brand and inappropriate content. With 92,000 people being exposed across all vCE Charter Study campaigns, the advertisers' concerns are justified.

The daily alerts and blocking technology discussed in the geography section of the report can also be deployed for Type 1 and/or Type 2 content sites. Real-time alerts can be set to notify publishers, marketers, and/or agencies if an advertisement is appearing in content deemed "not

brand safe." In addition, the technology can completely block the advertisement from being served in certain environments. The definition of what is brand safe can be customized by the brand.

It should be noted that it is likely that the number of inappropriate adjacencies is much higher in the every-day broader, online advertising universe. Factors that may have positively influenced the low percentage of inappropriate advertising placements in the vCE Charter Study include:

- the brands under measurement were premium national marketers and, therefore, more likely to use higher quality content;
- many of the brands already were employing advertising blocking technologies from external third parties but, even with these technologies in place, several instances of inappropriate placements still appeared;
- in a few instances, select demand-side platforms chose to obfuscate the URLs where the advertisements were run, meaning that brand safety could not be measured and clients could not validate where the advertisements were run.

FRAUD

Today's online advertising ecosystem involves many players, each with a specific role and goal. The inherent complexity in this landscape, however, results in a lack of control and visibility into online advertising delivery.

Although the vast majority of individuals in the digital-advertising universe operate with the best of intentions, there are fraudulent players—just as there are in any industry—that can disrupt the value chain.

The complicated mechanism of advertising delivery can involve up to 20 different

players; quite often neither the buyer nor the seller has full insight into each step in the process.

The term *fraud*—as it relates to online advertising—encompasses a variety of impression-delivery scenarios. In some cases, there is direct fraud, which is deliberate and completely illegitimate. Other types of fraud, by contrast, are unintentional by-products of legitimate business practices.

In either case, fraudulent activity does not deliver advertisements to actual people as intended, and they, therefore, should be excluded from validated impression counts.

The vCE Charter Study specifically measured two aspects of inappropriate delivery:

- the incidence of advertising delivery via non-human spiders and bots identified by the IAB; and
- the incidence of advertising delivery on sites with clear illegitimate and intentional fraud.

List of Non-Human Spiders and Bots Identified by the IAB

To help members of the online marketing ecosystem better understand (and avoid) issues relating to fraud, the IAB maintains a list of all known non-human spiders and bots.

All IAB-accredited advertising servers are required to filter out these known sources of non-human advertising impressions. The use of some of the spiders and bots on this list is a completely legitimate practice employed by many Web sites for a variety of uses—to gather data to help index pages for search engines, for instance, or to determine page content for the purposes of offering contextual advertising placements.

Regardless of their use, however, they do not deliver advertisements to consumers

and, therefore, can wreak havoc on advertising delivery and validation, with wasted advertising impressions and skewed results of advertising-effectiveness measurement.

An analysis of vCE Charter Study campaigns showed that the average campaign in the study had 0.16 percent of total impressions being delivered via these spiders and bots, with a range of 0.03 percent to 0.49 percent (See Table 2).

TABLE 2
Percent of Total Impressions Delivered via Non-Human Spiders and Bots (as per IAB List)

	Percent of advertisements delivered to non-human traffic
Campaign 1	0.20
Campaign 2	0.26
Campaign 3	0.27
Campaign 4	0.06
Campaign 5	0.21
Campaign 6	0.09
Campaign 7	0.07
Campaign 8	0.12
Campaign 9	0.17
Campaign 10	0.10
Campaign 11	0.10
Campaign 12	0.09
Campaign 13	0.03
Campaign 14	0.49
Campaign 15	0.04
Campaign 16	0.04
Campaign 17	0.40
Campaign 18	0.10
Average	**0.16**

Sites with Intentionally Fraudulent or Illegitimate Activity

In addition to known spiders and bots, part of the vCE Charter Study analysis included an evaluation of fraudulent impressions that were delivered intentionally by means of illegitimate online activity.

Campaign delivery was reviewed manually for unusual activity indicative of intentional fraud. Such indicators might be unusually high (or unusually low) in-view rates or little (or excessive) mouse movement on the creative. Upon identifying these outliers, further human investigation either confirmed or negated the hypothesis.

The analysis revealed that more than 200 sites were guilty of this type of fraudulent delivery (See Figure 17). Additionally, the investigation uncovered that one of the sites delivered almost 2 million advertisements in the vCE Charter Study, supporting the need for consistent hygiene on campaigns to accurately measure delivery and ensure that only advertisements that are delivered to actual humans are counted in validation and effectiveness measurement.

Again: these advertisements were not blocked from serving for the purposes of this study, but instances of delivery were measured.

Although these two categories of fraudulent advertising delivery accounted for only a small percentage of total advertising impressions in the vCE Charter Study, there is a variety of other sources of fraud that consistently results in significant waste. For perspective, of the approximately 1 trillion URLs that comScore processes each month (40 percent more than all the traffic of the entire U.S. Internet population), comScore's full suite of fraud-detection technologies identified levels of fraud ranging from 3 percent to 10 percent for a given campaign.
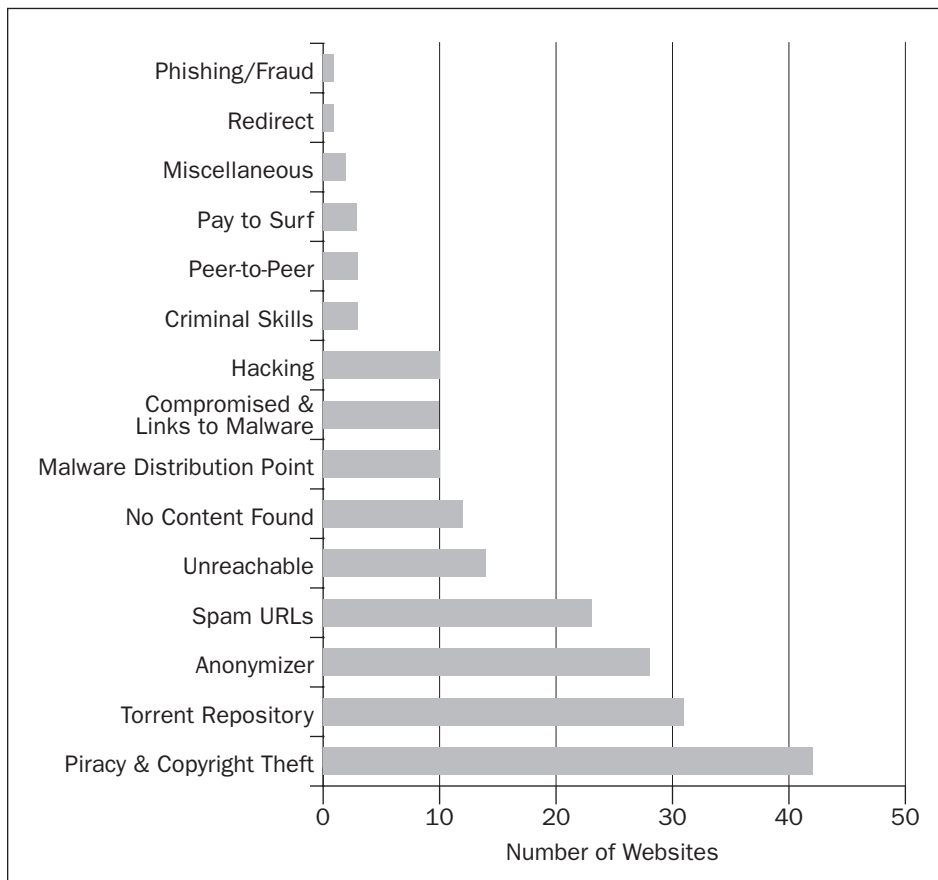
Figure 17 Custom Categorization of Sites with Intentionally Fraudulent Activity

Figure 18 Intersection of Percent of In-View, In Geography and On Target advertising Impressions Delivered For a Sample Campaign in vCE Charter Study

Clearly, no brand is immune from fraud, and it should be an area of concern for all players in the ecosystem.

INDUSTRY IMPLICATIONS

The vCE Charter Study demonstrated that each dimension of advertising delivery—viewability, audience targeting, geographic targeting, brand safety, and fraud—has a significant impact on whether an advertisement has an opportunity to achieve its intended objective. And, the results of the study demonstrate that each element should be a central component of advertising-delivery validation measurement.

Advertisers want to understand advertising delivery to each of these core dimensions, and they also require a holistic, un-duplicated view of total campaign delivery.

To achieve this un-duplicated accounting of delivered impressions, advertisers require a simple solution that eliminates all of the wasted time and error associated with merging disparate data sources.

Consider, for example, results from a single campaign in the vCE Charter Study. When measured individually, the findings showed that

- 38.9 percent of the advertisements were delivered to the right target audience;
- 58.0 percent of the advertisements were delivered in-view; and
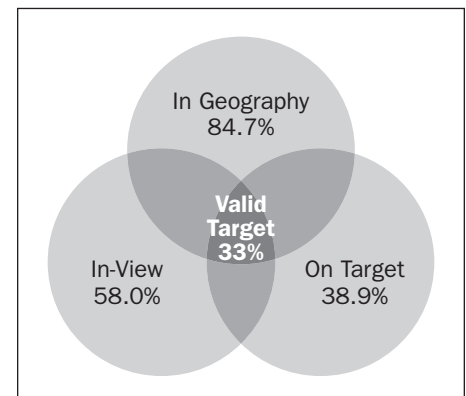- 85.7 percent of the advertisements were delivered in the right geography.

Because of duplication across these three dimensions, one cannot simply sum the percentages, as this would suggest that 155.9 percent of the advertisements were delivered according to plan or that 118.4 percent of the advertising impressions did not deliver well (Figure 18). Instead, through the use of a single tag and a single measurement solution, vCE was able to validate that a combined total of 33 percent of the advertisements were delivered according to plan.

To date, technology did not exist to identify and correct the source of sub-optimal performance. In a more perfect world, however, advertisers and publishers should be able to contract and pay on the basis of impressions that not only were served for the campaign but also fully met the validity criteria.

vGRP: A Cross-Media Comparable Metric

For marketers to plan, measure, and evaluate media across channels, they require digital campaign delivery measurement that can be translated into traditional metrics, such as reach, frequency, and gross

TABLE 3

Gross and Validated GRP
for a Sample Campaign in
vCE Charter Study

	Gross	Validated	vRatio (%)
Reach	8.7	4.9	56
Frequency	5.4	4.2	79
GRP	46.7	20.7	44
TRP	61.4	24.5	40

rating points (GRPs). The results of vCE Charter Study point to the ability to calculate a validated online GRP—a vGRP—that will provide the digital ecosystem with cross-media comparable GRP metric in the proper context of how online advertising works.

vGRPs can be calculated by removing all advertising impressions that did not have the opportunity to make an impact—including those that were not in-view, delivered to the wrong geography, served near-brand unsafe content, and subject to fraud.

Similarly, validated target-rating points—or vTRPs—can include an overlay of audience-validated data, providing yet another actionable metric for marketers seeking to plan campaigns across channels.

The example below of a CPG brand helps to illustrate how vGRPs can impact the true reach and frequency of a campaign (See Table 3). In this example, using nonvalidated impressions, the campaign appeared to have delivered 46.7 GRPs. With validated impressions, however, the campaign delivered 20.7 vGRPs, yielding a vRatio of 44 percent.

This delta between GRPs and vGRPs in digital media demonstrates the volume of waste occurring, and highlights significant areas for improvement.

CONCLUSION

vCE Charter Study Key Themes

Although the vCE Charter Study sheds light across every aspect of delivery, three consistent themes emerged in the findings:

- Marketers are not necessarily getting what they expect when they buy online advertisements. From advertisements delivered next to objectionable content to advertisements that never had the opportunity to be seen, there are countless examples where the digital medium is simply not delivering on its promise.
- The manner in which online advertising is delivered varies significantly by site, placement, and even creative. Across all dimensions of advertising delivery, the vCE Charter Study demonstrated clear examples of situations where advertising impressions were largely wasted. These findings suggest that measuring all dimensions of advertising delivery for every placement in a holistic fashion is critically important.
- Regardless of the quality of the buy, there is almost always room for improvement. Advertisers and publishers who understand and leverage the power of validation stand to gain much more value from the digital channel.

The digital medium has advanced the discipline of advertising in many respects, but it has also introduced significant complexity to the media equation. To maximize the value of this important channel, it is important to have the tools to ensure the industry regains its footing on some of the aforementioned pitfalls and continues to advance forward.

The authors believe the vCE Charter Study has illuminated many of the ways value is currently being left on the table. Now is the time for advertisers, publishers, and other industry stakeholders to recognize that value. **JAR**

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