

Changing How the World Sees Digital Advertising

vCE™ CHARTER STUDY REVEALS HOW VALIDATED ADS ARE IMPACTING THE FUTURE OF DIGITAL AND CROSS-MEDIA MEASUREMENT



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Introduction

Across the globe, digital media has 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 (U.S.) reached \$10 billion in 2010 and has grown at 20%+ 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 landscape itself has also experienced a massive evolution. From new ad formats and placement strategies to new delivery systems and ad technology, it has become challenging for players across the industry to stay up-to-speed.

Until now, 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 ad networks and from marketers to agencies, key players in the space are calling for more transparency and greater accountability as it relates to online ad delivery.

Addressing this industry-wide call-to-action, the 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 an initiative called, *Making Measurement Make Sense* (3MS). Simply put, 3MS's goal is to improve, standardize and simplify digital media measurement. In order to reach this goal, 3MS has published [guidelines](#) and is conducting research to help address issues surrounding ad delivery, measurement and validation.

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Validated Campaign Measurement

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

vCE validates whether or not impressions delivered as part of a campaign were:

-  In-view (i.e. viewable by an actual consumer)
-  Delivered in the right geography
-  Seen in brand safe environments
-  Absent of fraud

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



Importantly, vCE gleans all this information via a single ad tag, thus enabling a comprehensive, but holistic, view of digital ad delivery that is unique to the marketplace. The use of a single ad tag is a critical component of this measurement approach as it evaluates all impressions consistently and applies validity conditions simultaneously. This eliminates all 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 can dramatically impact the quality of the analyzed data.

This is the first study to bring twelve leading marketers together to holistically understand how online advertising is delivered.

The vCE Charter Study

To better understand issues associated with display ad delivery and validation, and to test-drive vCE, twelve leading marketers participated in a U.S.-based charter study, called the vCE Charter Study.

The eye-opening findings help 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 ad measurement. Validated impressions can also be used to report validated gross and target 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 it will also help to 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:



Time Period: December 2011

Total Campaigns: 18

Media Placements: 2,975

Site Domains: 380,898

Ad Impressions: 1.8 billion

Format: All ads were display, delivered via iframes.

Importantly, 100% of the vCE Charter Study ad impressions were delivered in iframes, including a majority of 'cross-domain' iframes. The definition of these iframes is discussed in the In-View section of this paper, but it is important to note that **this is the first industry study to measure and report on in-view rates for ads delivered via all iframes, including those delivered via the notoriously difficult-to-measure cross-domain iframes.**

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 as well as by publisher-level, placement-level and/or creative-level.

It should also 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 advertisers generally engage in high-end, premium campaigns, the findings may represent 'best-case scenarios,' rather than the norm.

The vCE Charter Study

KEY METRIC DEFINITIONS



In-view: In-view is defined as an ad impression with at least 50% of the ad's pixels in the user's viewport for one second or more. This definition is consistent with current working standards outlined as part of the 3MS initiative. The parameters for the definition of in-view can be easily changed to accommodate any change in industry standards.



Audience: Using the comScore panel of 2 million global consumers, comScore is uniquely qualified to report on audience delivery with person-level insights. This means the study was able to validate delivery to target audiences based on traditional demographics as well as more than 80 behavioral segments.



Geography: Geographic validation is measured by country on a global basis. 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 U.S.



Brand Safety: Ads 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 further discussed within the Brand Safety section of the paper.



Fraud: Fraud was measured by counting ad impressions served to non-human agents as per the IAB spiders and bots list as well as ads that were served to users via illegitimate methods or content. Although there are several other types of fraud detections, these two very basic types 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 ad delivery across these key dimensions for the advertised brands, and in so doing, frame the relative importance of each for the industry. Although vCE offers the ability to optimize campaigns in-flight in order to eliminate waste and generate better advertising outcomes, this feature was not deployed for the purposes of the study, as it would detract from the study's objective of determining a baseline of delivery prior to in-flight optimization.

Executive Summary of Findings

1 In-View Rates are Eye-Opening

The study showed that 31% of ads 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% to 100% on a given site. This variance illustrates that even for major advertisers making premium buys, there is a lot of room for improvement.

2 Targeting Audiences Beyond Demos Can be Powerful

Generally, campaigns that had very basic demo targeting objectives performed well with regard to hitting those targets. For example, those with an objective of reaching people in a particular broad age range did so with 70% of their impressions. Predictably, as additional demographic variables were added to the targeting criteria (i.e. income + gender), accuracy rates of the ad delivery declined. However, the results also showed that, on average, 36% of all impressions in a campaign were delivered to audiences with behavioral profiles that were relevant to the brand (i.e. consumers with demonstrated interests in categories, such as food, auto or sports). One campaign had 67% of its impressions viewed by the target behavioral segment, demonstrating that targeting to people based on interests or behaviors holds strong potential.

3 The Content In Which An Ad Runs Can Make or Break a Brand

Of the campaigns analyzed, 72% had at least some impressions that were delivered adjacent to objectionable content. While 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.

4 Fraud is the Elephant in the Digital Room

Fraud is an undeniably large and growing problem in digital advertising. The results showed that an average of 0.16% of impressions across all campaigns was delivered to non-human agents from the IAB spiders & 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.

5 Digital Ad Economics: The Good Guys Aren't Necessarily Winning

The study showed that there was little to no correlation between CPM and value being delivered to the advertiser. For example, ad placements with strong in-view rates are not getting higher CPMs than placements with low in-view rates. Similarly, ads that are doing well at delivering to a primary demographic target are not receiving more value than those that are not. In other words, neither ad visibility nor the demographic target delivery is currently reflected in the economics of digital advertising.



Aside from adhering to the 3MS proposed working definition, viewability measurement must also account for all ad delivery formats in order for it to be accurate.

In-View

DEFINING IN-VIEW

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

The advertising industry has accepted OTS as a standard metric, which many rely on to build cross-media campaigns and to assess the effects of advertising across channels. This metric is particularly important based on the very simple fact that:

If an ad does not have an opportunity to be seen by a real user, then it cannot possibly deliver its intended effect.

When compared to other forms of media, digital advertising has unique characteristics relating to an ad's opportunity to be seen. To date, the standard has simply been to measure whether ads were served to a page. However, there are many reasons why a served digital ad 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 ad at the top of the page had a chance to load. An alternative scenario is when a user remains at the top of the page, never scrolling to the bottom

where many ads have loaded. Given these scenarios, which inherently result in many ad 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 ad spend. 3MS proposed a standard definition of in-view, which states that at least 50% of the pixels of the ads must be in-view for a minimum of 1 second.

Aside from adhering to the 3MS proposed working definition, viewability measurement must also account for all ad delivery formats in order for it to be accurate. There are three distinct ad delivery formats from which publishers can choose to deliver ads, and these are:

FORMAT I

Delivery of an ad directly on a publisher site:

In this instance, the publisher places a JavaScript ad tag on its page with the marketer's ad 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 on their site, as it can help to prevent any unwanted content associated with the ad 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 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 ad is in-view and for how long.

FORMAT III

Cross-domain ('unfriendly') iframes:

If a site chooses not to allow the ad to communicate directly with the page, it reserves a place for it in an iframe, which



61%
of iframed ads
are delivered
via cross-domain
or unfriendly
iframes.

calls a third-party domain to serve the ad. This severed communication link presents a daunting challenge to the measurement of the iframe's position on the page, and, therefore, ad visibility.

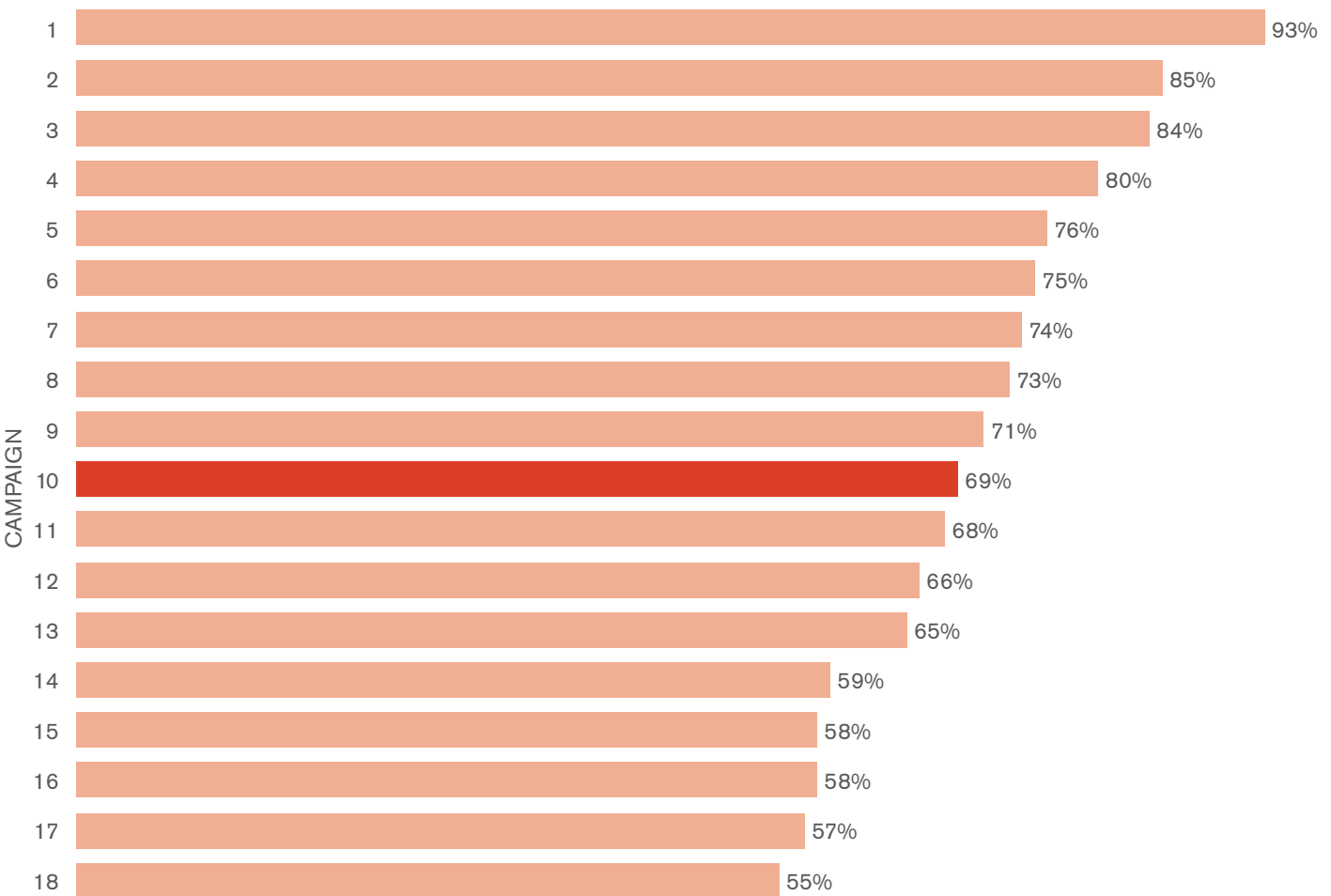
The vCE technology is unique in the marketplace as it is the first and only that can see through cross-domain, or unfriendly, iframes, which means that vCE's in-view rate accounts for all ad delivery formats.

This is particularly important given that comScore research shows that 61% of iframed ads are delivered via these unfriendly iframes. To demonstrate the value of this patent-pending technology, 100% of the ads served in the vCE Charter Study were delivered via iframes.

IN-VIEW BY CAMPAIGN & SITE

Across all campaigns in the vCE Charter Study, the average in-view rate was 69% (See Figure 1). The in-view rates by campaign, however, showed significant variation – with a range of 55% to 93%. This indicates that, on average, 3 out of 10 ads were not seen and were therefore wasted.

Figure 1 Percentage of Ads In-View by Campaign

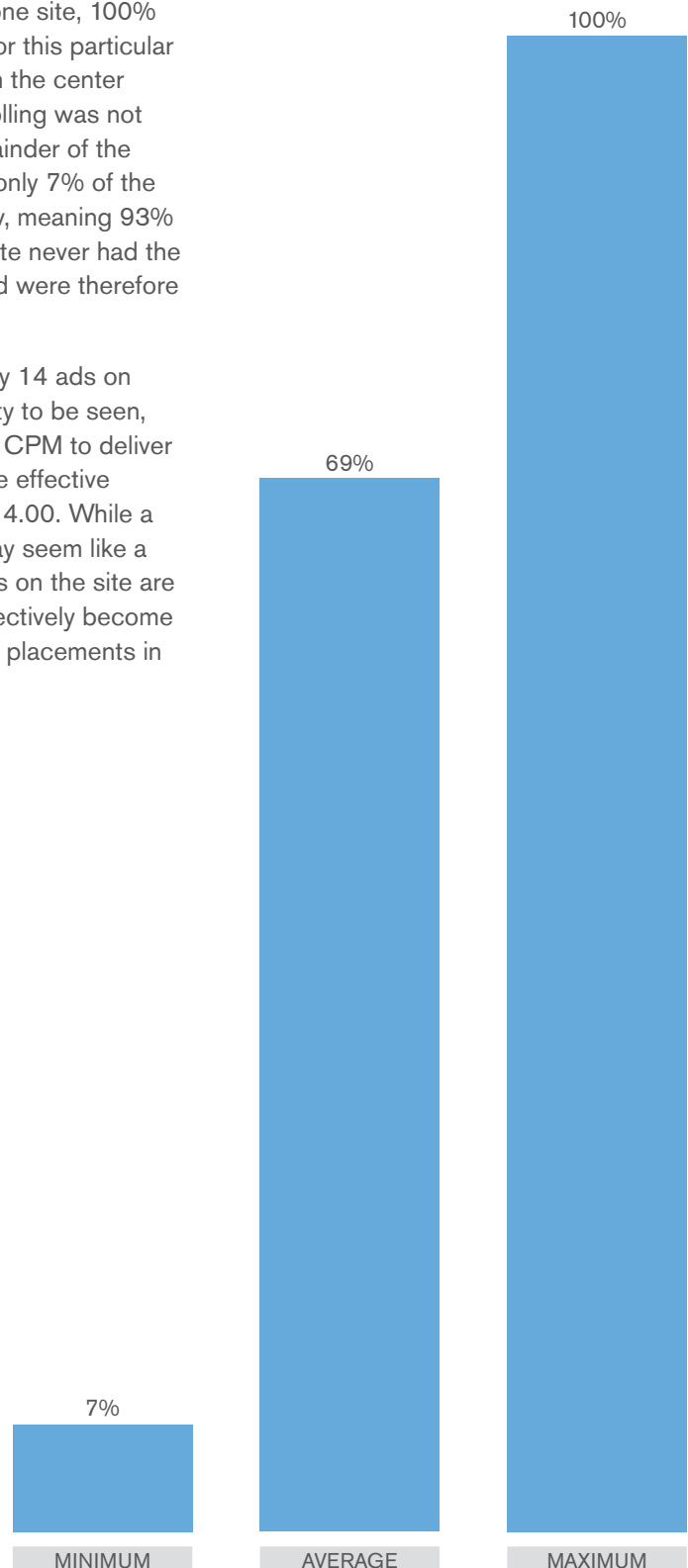




A site-level view across campaigns revealed even more variation in in-view rates (See Figure 2). On one site, 100% of the ads were in-view. For this particular site, all ads were placed in the center of the homepage and scrolling was not required to reach the remainder of the content. For another site, only 7% of the delivered ads were in-view, meaning 93% of all ads served on that site never had the opportunity to be seen and were therefore completely wasted.

Since only one out of every 14 ads on the 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. While a site with a \$1.00 CPM may seem like a bargain, when waste levels on the site are as high as 93%, it can effectively become one of the most expensive placements in a media plan.

Figure 2 Percentage of Ads In-View by Site





TO BETTER UNDERSTAND IN-VIEW RATES, THE RESULTS WERE ANALYZED BY:

- **Placement** (*premium, standard, etc.*)
- **Relative Size of Site** (*overall and within category*)
- **Content Type** (*News sites, Sports sites, etc.*)
- **Ad Size** (300x250, 728x90, 160x600)
- **Position on the Page** (*above-the-fold versus below-the-fold*)

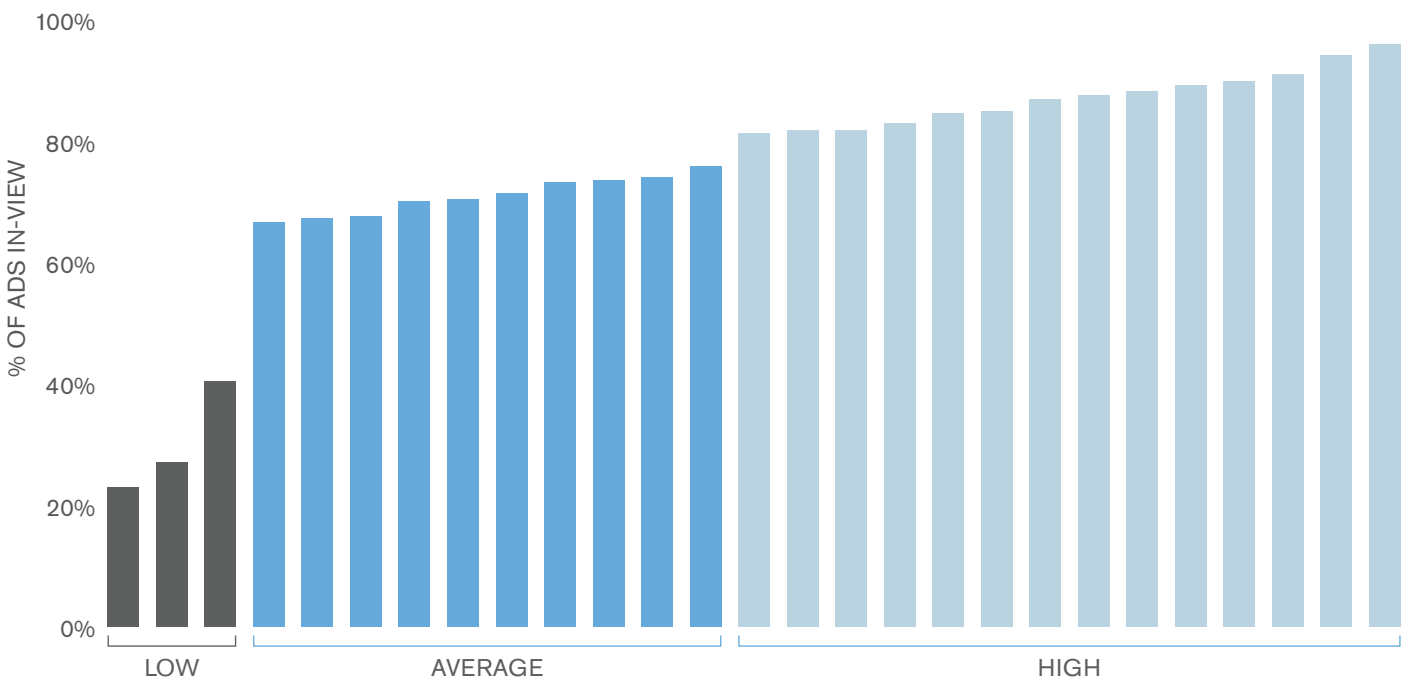
IN-VIEW BY PLACEMENT

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% to 95%. The placements appeared to fall into three distinct levels of in-view (See Figure 3).

- The largest number of placements delivered more than 80% of the advertisements in-view—well above the vCE Charter Study average (69%). Such placements could be considered high-visibility inventory.
- Approximately one-third of the placements delivered advertisements between 66% to 75% 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 viewable.

Figure 3 Percent of Ads Delivered In-View for Individual Placements Across a Traditional Content Site





The difference in in-view rates between Top 50 sites versus the long-tail sites in their category was a full 16-percentage points.

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, a separate grouping of average in-view rates was created based on site size. Using comScore Media Metrix® rankings within specific content categories (i.e. Sports sites, News sites, Food sites, Health sites, etc.) 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, and the findings were then analyzed. 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 versus the long-tail sites was a full 16-percentage points (See Figure 4).

This finding suggests that large sites within a content category do a better job than smaller sites at ensuring the ads they deliver to consumers are actually viewable. Further analysis is needed to identify exactly why this is the case, but 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 (See Figure 5). For example, Coupon sites delivered relatively strong in-view rates (89%), whereas Pet sites (27%) struggled, delivering slightly more than a quarter of ads in-view. This variation across categories might, in part, reflect the common layouts among sites in a similar genre.

Figure 4 Percentage of Ads Served In-View within a Given Site Category

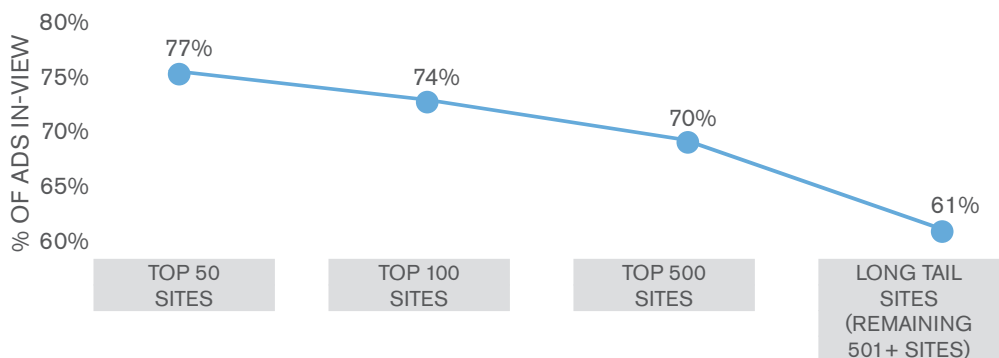
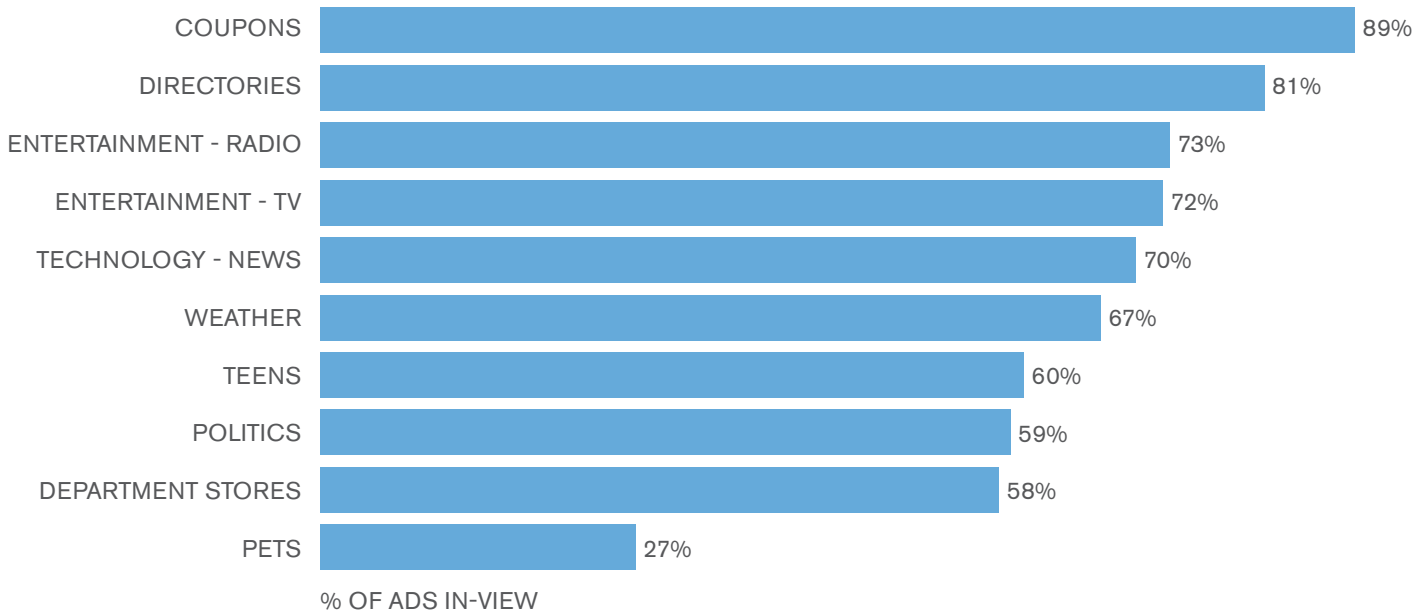




Figure 5 Percent of Ads Served In-View by Select Content Types

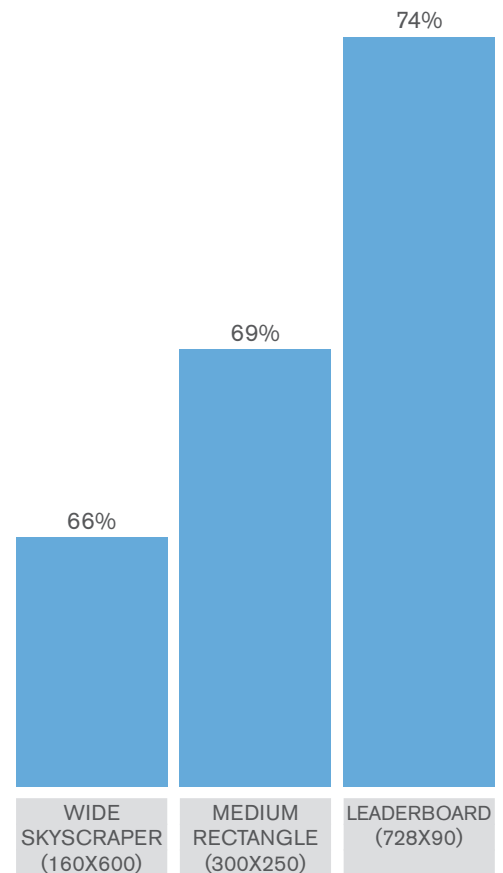


IN-VIEW BY AD SIZE

The most common ad size used in the vCE Charter Study was the Classic Leaderboard (728x90), followed by the Medium Rectangle (300x250), and then the Wide Skyscraper (160x600). The Classic Leaderboard delivered the strongest in-view rates (74%), but there was significant variance across all sites with a range of 7% to 93% using this size. The Medium Rectangle format (300x250) delivered 69% of its ads in-view, and the Wide Skyscraper (160x600) delivered the lowest portion of ads in-view (66%).

Although further research is required to better understand the driving factors for differing in-view rates across ad sizes, one potential cause is the relationship between ad sizes and their typical placement on a web page. For example, Wide Skyscraper ads run vertically along a web page, making it more difficult for 50% of its pixels to be in the user's viewport for at least one second.

Figure 6 Percent of Ads Delivered In-View by Ad Size





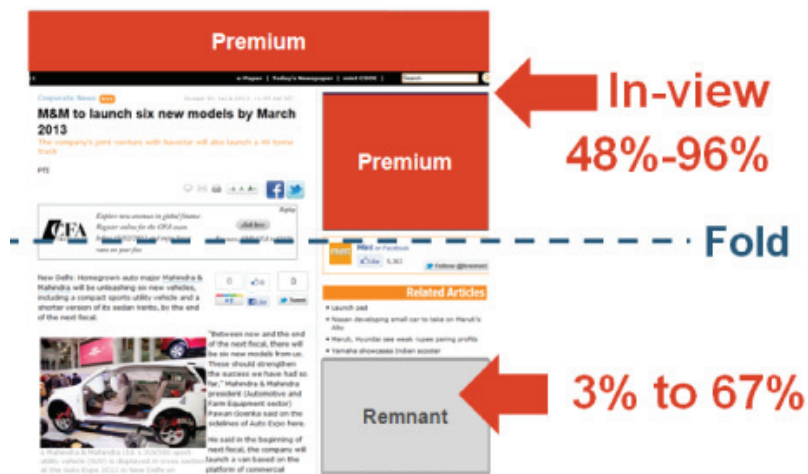
There's gold below the fold. Marketers and publishers who can determine what is in-view by page location have an advantage.

IN-VIEW BY POSITION ON PAGE

When discussing viewability, there is a common misperception that ads delivered 'above-the-fold' are seen, while ads delivered 'below-the-fold' are not. While the quality of in-view rates can vary from 'above-the-fold' versus 'below the fold' ad delivery, the vCE Charter Study results help to dispel some of these myths. Surprisingly, the findings demonstrate that some ads delivered 'above-the-fold' were not seen because users quickly scrolled past them before the ad had a chance to load, and alternatively, many ads 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. Publishers, for example, should monetize all ads on their site that deliver an opportunity to be seen, regardless of where the ad is placed on the site. This might mean that inventory 'below-the-fold' can be priced as premium as long as the publisher can prove it was viewed. Alternatively, marketers can look for inventory that is currently identified as remnant, which 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.

Figure 7 Percentage of Ads In-View by Location on Page





IN-VIEW & COST

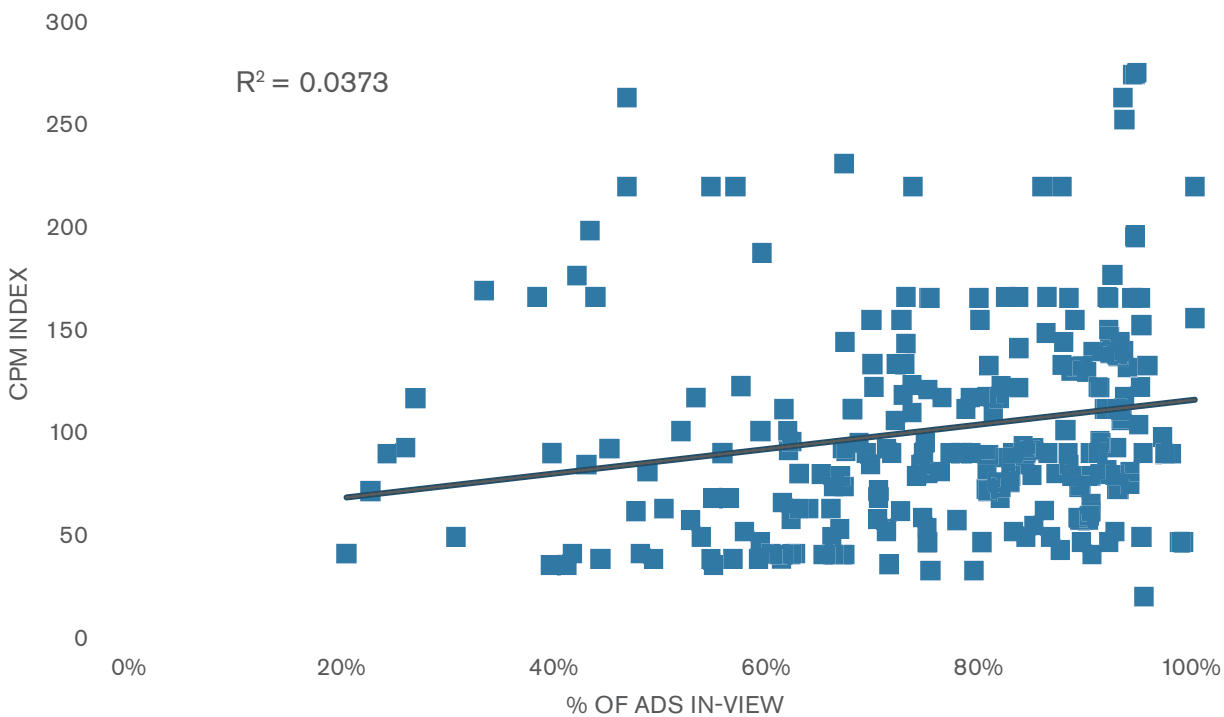
Finally, comScore explored the relationship between the cost of the ad and the in-view rate. Eight of the vCE Charter Study campaigns provided cost data for use in the analysis. Some campaigns were branding-oriented, while others were direct response. In total, 300 unique ad placements had accompanying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

The analysis showed there is virtually no correlation between the CPM paid for the ad 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.

Publishers and marketers with detailed in-view data are better able to value the placements that provide true value and price them accordingly.

Figure 8 Correlation of In-View Rates & CPM





Audience

DEFINING TARGET AUDIENCE

Marketers invest in digital with the goal of buying ads that are more successful than traditional media at reaching a desired audience. Unfortunately, the extent to which an ad reaches its target can vary greatly based on many factors. The comScore vCE Charter Study evaluated audience delivery in two separate, but important, ways:

Traditional Demographics

Delivery of ad impressions to traditional demographic targets, including age, gender, household income and the presence of children in the home.

Behavioral Segments

Delivery of ad impressions to behavioral segments based on observed online behaviors (i.e. food enthusiasts, sports fans, etc.).

Validating ad delivery based on traditional demographics is the most common approach. However, understanding how well an ad reached a relevant behavioral target is potentially more valuable, since it offers perspective on not just who the person is but on what they are interested in, especially as it relates to the advertised product.

To evaluate the accuracy of ad delivery, vCE Charter Study participants identified their target audiences for each campaign, which could include one or any combination of the traditional demographic attributes as well as behavioral segments. Behavioral segments are comprised of the heaviest consumers (top 50%) of topic-specific Web content (i.e. sports, food, cars, personal electronics or travel). vCE Charter Study participants identified a primary behavioral attribute from 80 different online behavioral profiles.

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

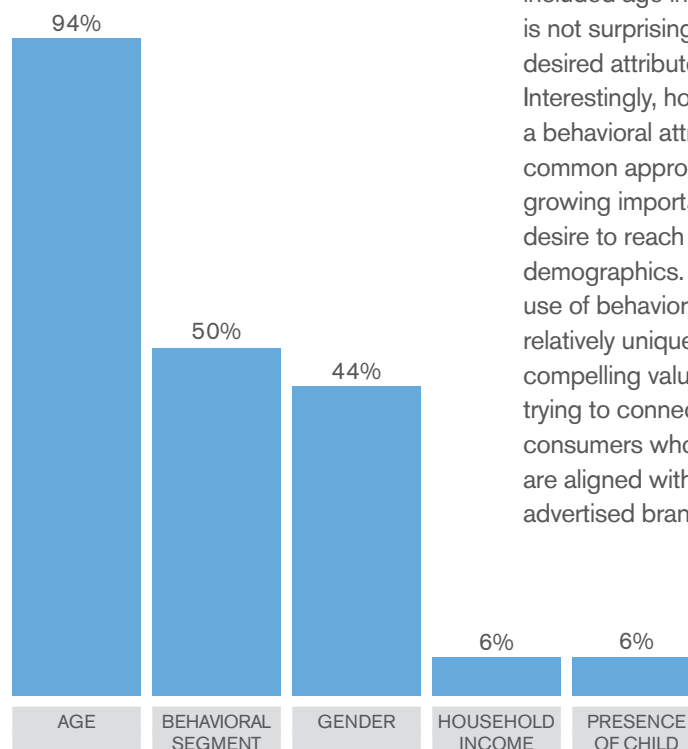


Figure 9 illustrates the most popular desired attributes across all campaigns in the vCE Charter Study. The majority of campaigns included age in their target set, which is not surprising given its wide use as a desired attribute across all forms of media. Interestingly, however, the ability to reach 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 should be noted that the use of behavioral campaign reporting is relatively unique to digital and certainly 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.

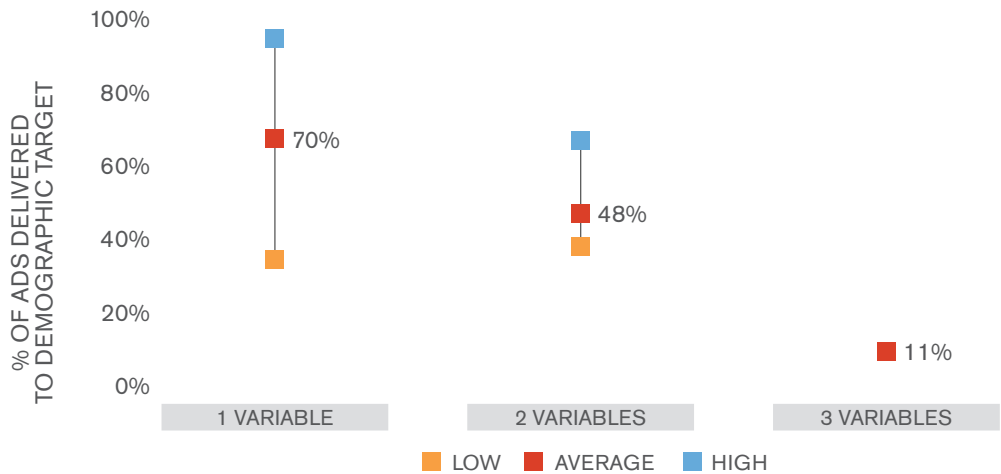


AUDIENCE TARGETING BY TRADITIONAL DEMOGRAPHICS

Across all vCE Charter Study campaigns, there was quite a bit of variance in their ability to reach the 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% of the time. In cases where there were two variables (e.g. women + 25-54 years old), the accuracy of targeting decreased to an average of 48%, and with three variables (e.g. women + 25-54 years old + with children under 18 in the home) the average was 11%.

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



*Demographic variables can include: age, gender, household income and/or number of children in the household. Due to sample size, a meaningful range could not be calculated for campaigns with 3 demographic variables.



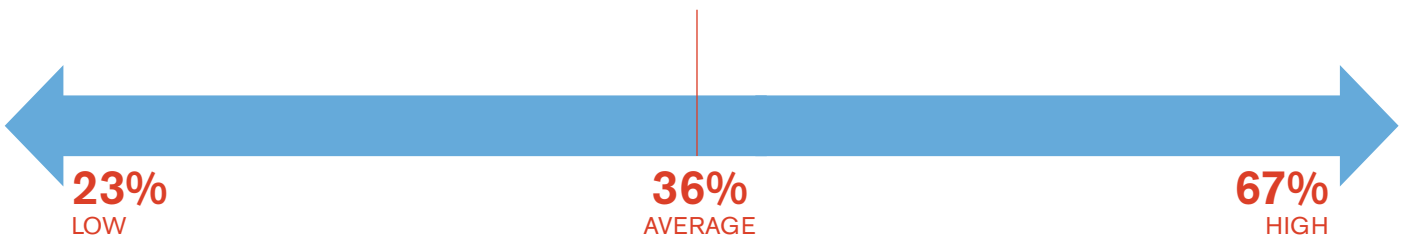
AUDIENCE TARGETING BY BEHAVIORAL ATTRIBUTES

In addition to looking at the audiences in terms of their demographics, online behaviors of people who were exposed to the campaign were also measured. The campaigns were measured against their desired behavioral attribute at the campaign level. In some cases, specific cookie-based behavioral targeting was used in several placements in the campaign. In other cases, marketers wanted to reach their desired behavioral audience through traditional media placements, such as delivering an ad alongside content of interest to their audience. Across all campaigns, the average campaign reached its behavioral audience target 36% of the time, with a wide range from 23% to 67% (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. However, if executed correctly, behavioral targeting can be a very powerful, efficient and effective means of delivering a brand message to a valuable audience.

One primary reason for these limitations includes the cookie-based nature of behavioral segmentation. For example, while a user may have visited a travel site that shared its information with data providers on the basis of the cookie for that browser/machine combination, there is no guarantee that when that cookie is observed later at some other site, that it represents the same user. Another reason relates to the freshness of the information. Someone may have visited a travel site six weeks ago, but they are no longer active in travel research. 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 didn't for the purposes of the research), it is likely that these numbers would be dramatically higher.

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





Using demographics alone to evaluate campaign delivery may not be sufficient.

It is also 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 the success of campaign delivery is not sufficient. For example, one campaign for a CPG-product that had a demographic target of women between the ages of 25-54 years old, only served 37% of impressions to that group. However 67% of the impressions 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.

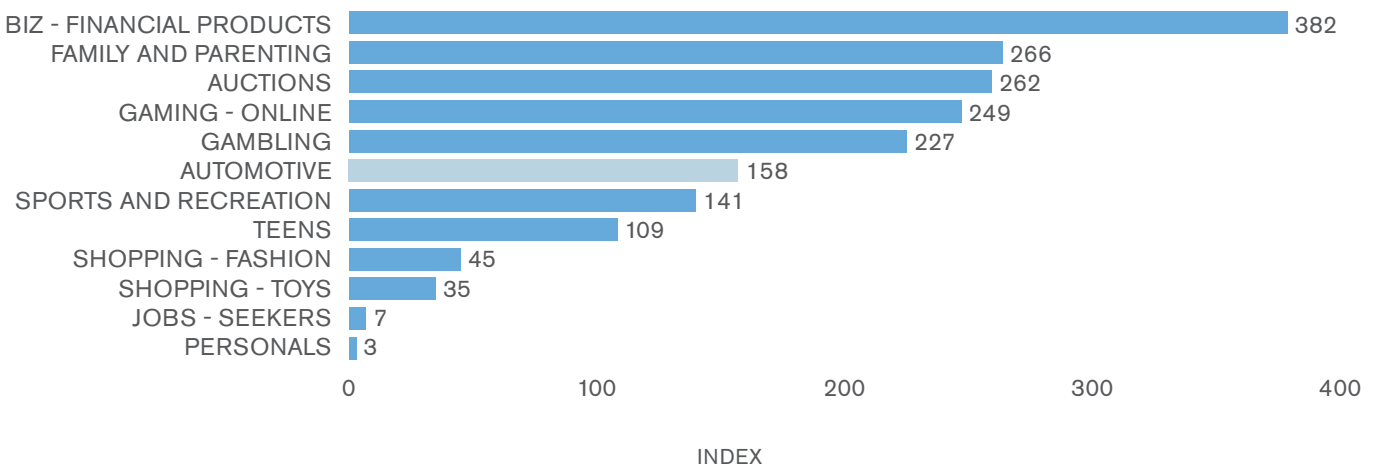
A separate analysis of an Automotive campaign in the vCE Charter Study helps to shed light on the value of behavioral campaign reporting and its ability to reveal a deeper portrait of the type of consumer exposed to the campaign. The analysis involved creating an index of visitation to online site categories for consumers exposed to the ad 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% 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 and 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 ads.

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 ads 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.

Figure 12 Index of Online Behavioral Activity by Category for Consumers Exposed to an Automotive Campaign





Unless cookie-based audiences are verified against a credible, third-party source, it is possible that they are missing the mark.

AUDIENCE TARGETING & COST

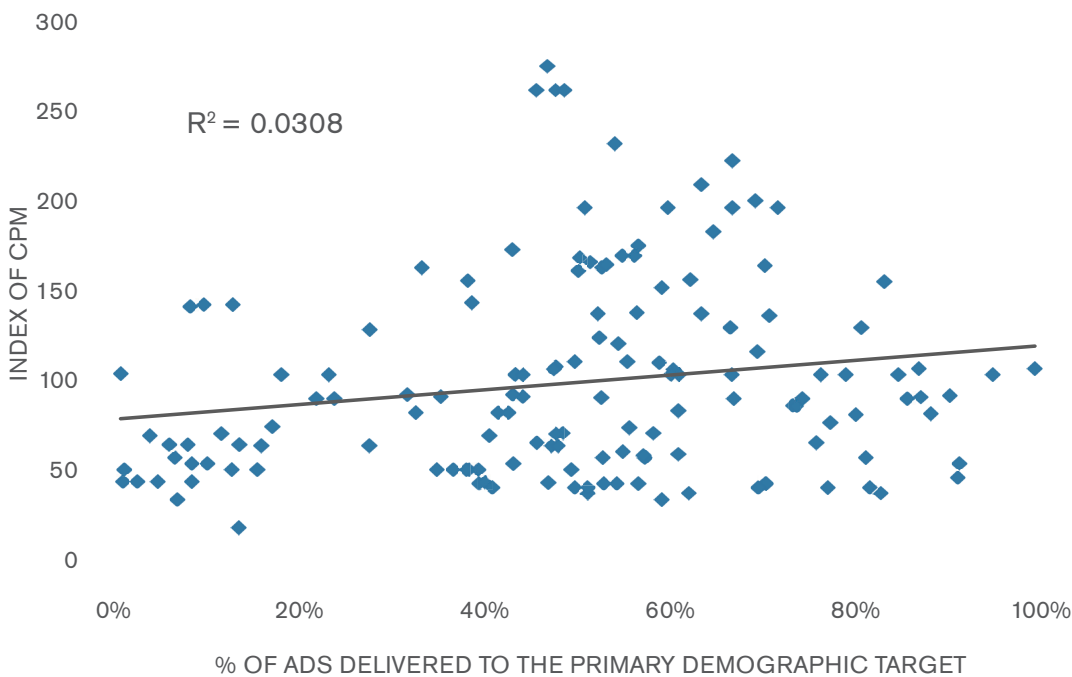
Using available CPM data (as outlined in the prior In-View section), the correlation between CPMs and the accuracy of demographic targeting (primary audience only) was analyzed as part of this research. The findings revealed a very small correlation (correlation coefficient = 0.18), suggesting that there is little or no relationship between the amount paid for an ad and its ability to reach the desired demographic target audience.

Before drawing macro conclusions about this finding, it is important to examine some of the potential reasons for this lack of correlation between these two variables. First, some marketers might simply not be building campaigns with the core objective of reaching a specific demographic, and instead they are 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 above, there are a myriad of companies that provide this data, and there is 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 ad placements reach their desired demographic 14% to 96% of the time. This indicates 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 ads that deliver to the intended audience compared to those that did not. This represents an opportunity for both advertisers and publishers, especially now that they have transparency into the accuracy of delivery and the ability to optimize in-flight to avoid waste.

Figure 13 Correlation of % of Ads Delivered to Primary Demographic Target & CPM





Geography

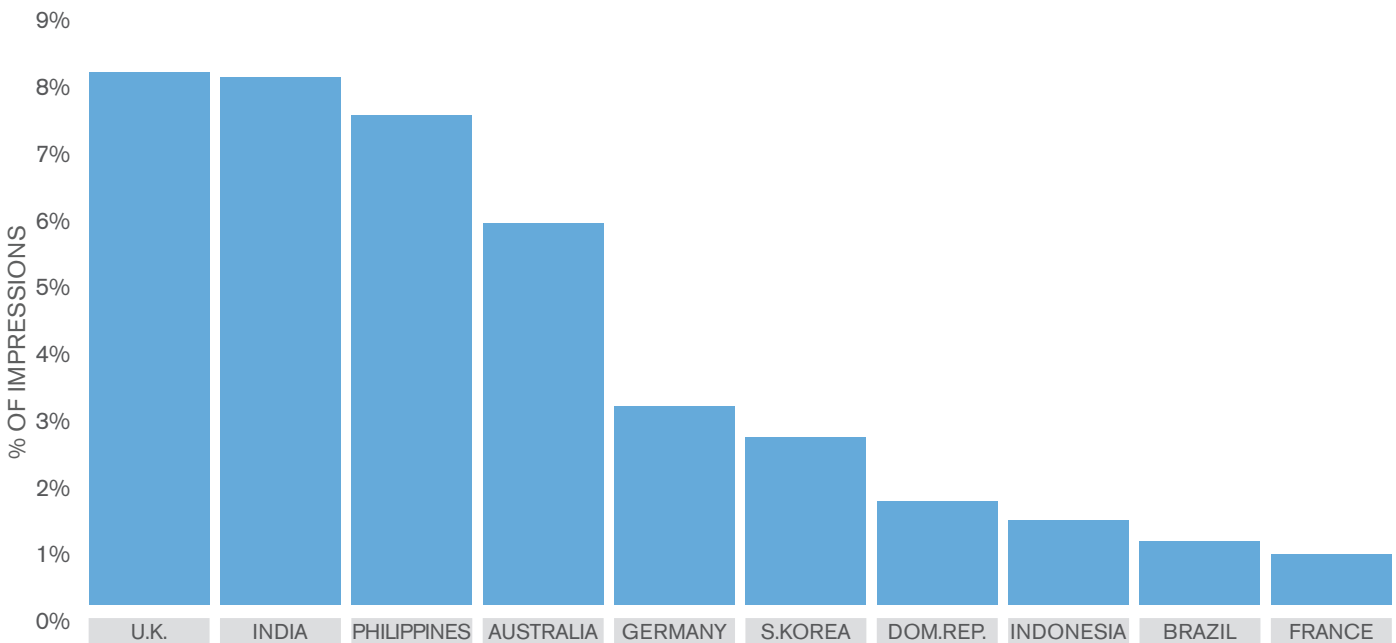
DEFINING GEOGRAPHIC TARGET

When delivering ads on television, it's relatively easy to ensure they run in their desired geographic market, because broadcast markets have defined geographic borders. The Internet, on the other hand, is borderless and 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 ads 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 & BY CAMPAIGN

All campaigns in the vCE Charter Study had a geographic target of the U.S., and in total, about 4% of impressions were delivered outside of the U.S. Of impressions delivered outside of the target, nearly half were served in Canada, and the remainder spread across Europe, The Caribbean, Asia-Pacific and Latin America. This finding suggests that a good portion of the wasted impressions were delivered to people living in countries whose native language is something other than English.

Figure 14 Percent of Ads Delivered to Geographic Market Among All Impressions Delivered Outside of North America





The inability for an ad to be delivered in its intended geography is often not a result of poor targeting capabilities, but rather due to error in complex ad buying and selling processes.

When examining the results on a campaign-by-campaign basis, it is interesting to note the large range of impressions delivered outside of the target geography. While one campaign performed flawlessly, another wasted about 15% 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 U.S.', this large range is somewhat surprising.

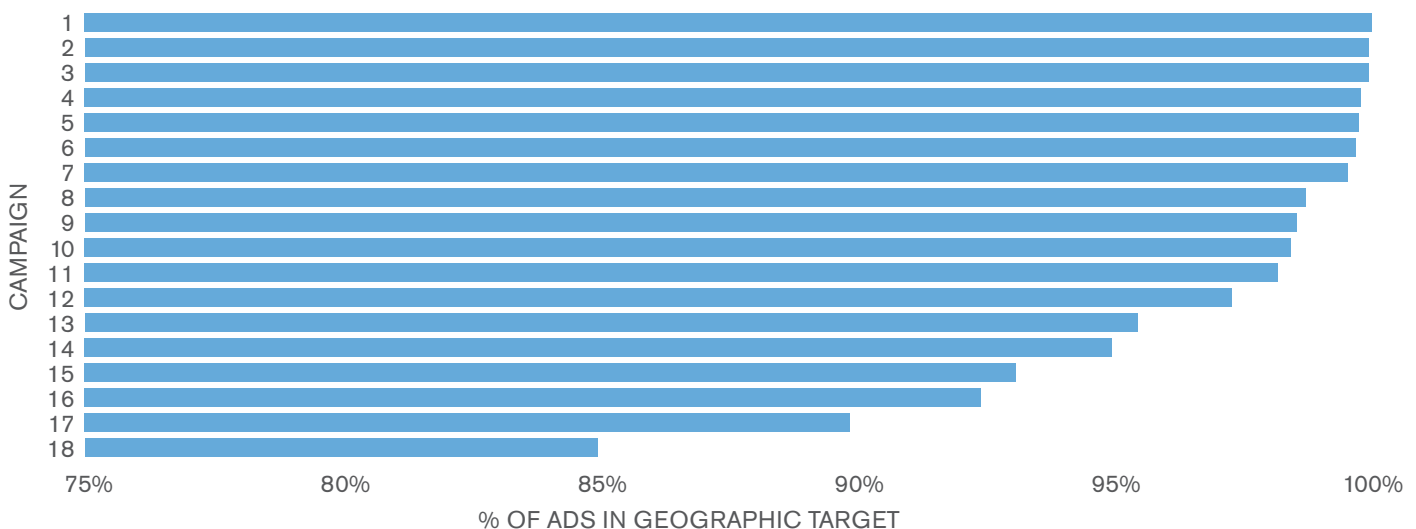
In such cases, the inability for an ad to be delivered in its intended geography is often not a result of poor targeting capabilities, but rather due to error in complex ad buying and selling processes. Delivery of ads outside a given geographic target often occurs for two primary reasons:

The first reason is simple communication error. In some cases, the site serving the ad is not aware of the intended geographic target. This occurs when the requirement does not appear on the insertion order (IO), which authorizes the purchase of impressions from the site and determines the characteristics of the ads to be served. Such misfires can be easily remedied by ensuring geographic requirements are a standard part of IO contract templates.

The second reason is due to human error. To target an ad to a given geography, the requirement must be programmed in the ad server that is delivering the ad. Occasionally this step is missed by the publisher, or in rare cases, the wrong geography is inadvertently selected.

Fortunately, there are easy ways to combat these issues. As long as geography is specified in the IO, performance can be optimized in-flight in two different ways. The first is through real-time alerting, which notifies sites when ads are being served outside the desired geographic region so that corrective action can be taken. The second option is to use an ad blocking technology, which can be implemented to prevent ads from being served outside the geographic target altogether. This is generally reserved for instances where serving an ad outside a specified geography may create privacy or legal concerns, and 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. Although neither alerting nor blocking was used in the vCE Charter Study, both of these features are part of the comScore vCE offering.

Figure 15 Percent of Ads Delivered In Geography by Campaign





Brand Safety

Due to the complex chain of online ad delivery through ad networks and exchanges, it is not always clear where an ad will appear.

DEFINING BRAND SAFETY

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

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

Type I: Adult-Content and/or Hate Sites

Almost all brands want to avoid having their ads run on Adult-Content or Hate sites. Although there might be some differences of opinion on exactly what sites fall into these categories, there are generally agreed upon and industry-endorsed lists that define these, and almost without exception, reputable marketers want to avoid them at all costs.

Type II: Brand-Specific Criteria

There are topics, issues and/or content that certain brands don't want to advertise near because it directly conflicts with and/or detracts 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 ad to appear next to an article about significant plane delays. Meanwhile, for countless other advertisers, delivering an ad to a consumer in this content would be completely benign.

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

BRAND SAFETY ON ADULT-CONTENT AND HATE SITES

To begin to understand the extent to which ads are delivered in content deemed inappropriate, the vCE Charter Study quantified the incidence of ad delivery on Adult-Content and/or Hate sites (Type I). 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 Figure 16). The measurement was applied to all campaigns.

Figure 16 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



72%
of the campaigns
had at least some
impressions
served in
inappropriate
content, which
spanned a total of
980 sites.

To the surprise of many advertisers in the vCE Charter Study, 72% of the campaigns had at least some impressions served in this type of inappropriate content, which spanned a total of 980 sites (See Figure 17). The good news is that the actual percentage of impressions involved was quite small, less than .01%. However, the study also showed that 92,000 people saw these ads, meaning that if some of these people were either loyal or prospective customers, it could be counter-productive and/or problematic for the brand.

It should be noted that it is likely that this number is much higher when evaluating the broader, online advertising universe as there are certain factors that may have positively influenced the low percentage of inappropriate ad placements in the vCE Charter Study. These factors include:

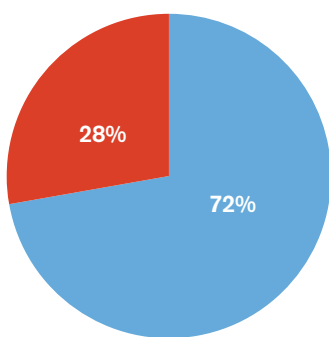
- The brands under measurement were premium national marketers and therefore more likely to use higher quality content
- Many of the brands were already employing ad blocking technologies from external third-parties. Even with these technologies in place, several instances of inappropriate placements still appeared.
- In a few instances, select demand-side platforms chose to obfuscate the URLs

where the ads were run, meaning that brand safety could not be measured and clients could not validate where the ads were run.

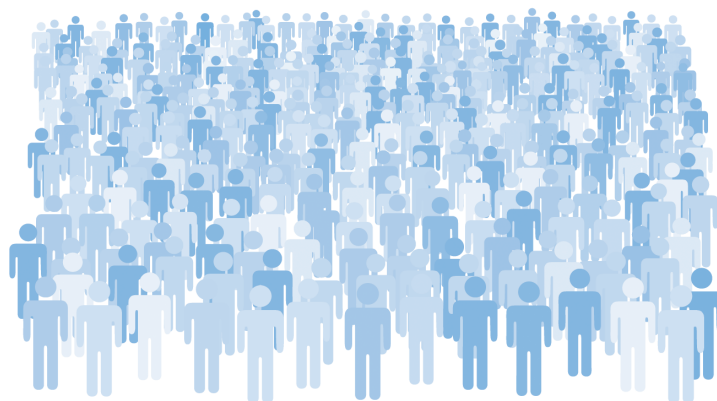
Despite the relatively low overall incidence of ads appearing next to inappropriate content, these findings still might be unsettling to advertisers. Even one ad impression delivered in the wrong environment can damage a valuable consumer's feelings toward a brand. With the increasing use of social media, a snapshot of a marketer's ad 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 ad is appearing in content deemed 'not brand safe.' In addition, the technology can completely block the ad from being served in certain environments. The definition of what is brand safe can be customized by the brand.

Figure 17 Percent of vCE Charter Study Campaigns with Impressions Delivered Next to Content Deemed "Not Brand Safe"



■ SOME ADS IN INAPPROPRIATE CONTENT
■ NO ADS IN INAPPROPRIATE CONTENT



92,000 PEOPLE
EXPOSED TO
Adult-Content
and/or Hate Sites



Fraud

The complicated daisy chain of ad delivery can involve up to 20 different players, and quite often neither the buyer nor the seller has insight into each step in the process.

DEFINING FRAUD

Today's world of online advertising involves many players in the ecosystem, each with a specific role and goal. However, the inherent complexity in this landscape results in a lack of control and visibility into online ad delivery. While the vast majority of individuals in the digital advertising ecosystem operate with the best of intentions, like any industry, there are fraudulent players that can disrupt the value chain. The complicated daisy chain of ad delivery can involve up to 20 different players, and quite often neither the buyer nor the seller has 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, while other types of fraud are an unintentional by-product of legitimate business practices. In either case, this fraudulent activity does not deliver ads to actual people as intended, so should therefore be excluded from validated impression counts.

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

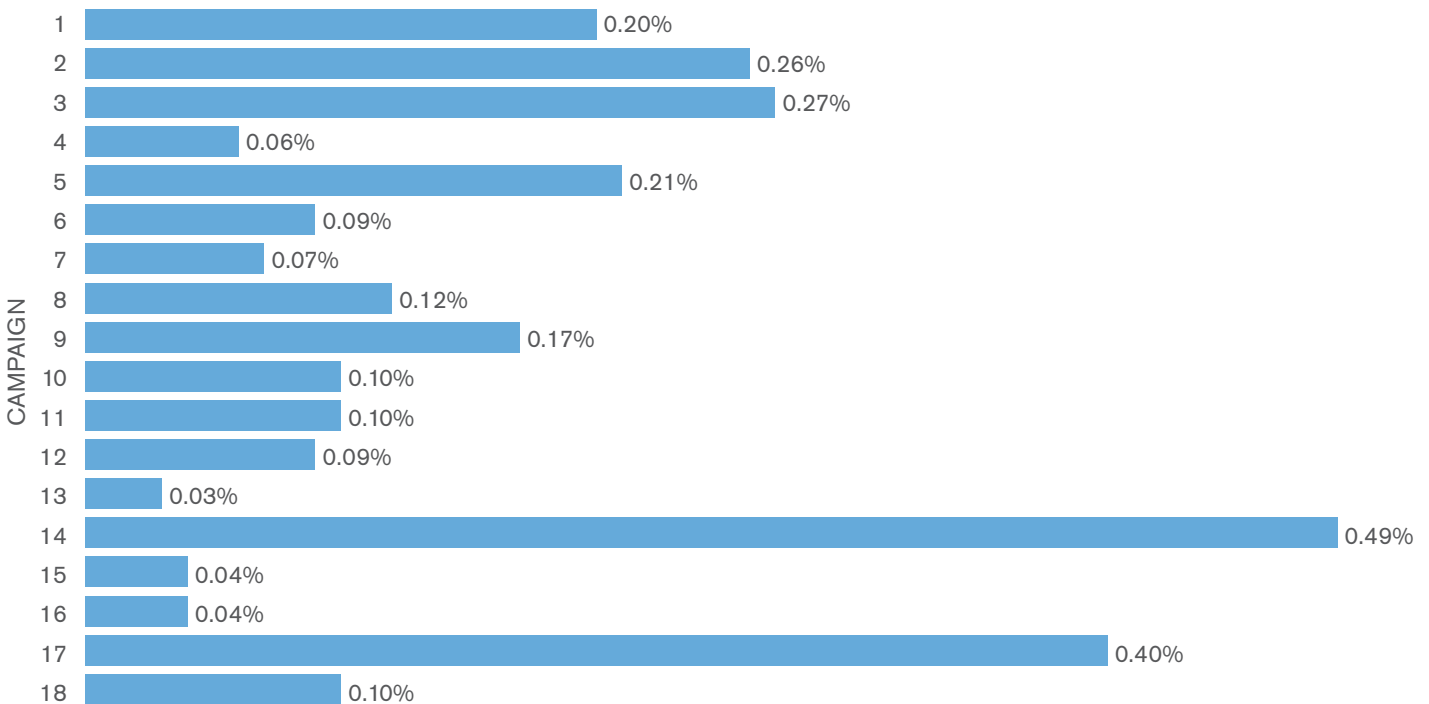
1. The incidence of ad delivery via non-human spiders and bots identified by the IAB
2. The incidence of ad delivery on sites with clear illegitimate and intentional fraud



LIST OF NON-HUMAN SPIDERS & BOTS IDENTIFIED BY THE IAB

To help members of the online advertising 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 ad servers are required to filter out these known sources of non-human ad impressions. The use of some of the spiders and bots on this list is a completely legitimate practice employed by many websites for a variety of uses, such as to gather data to help index pages for search engines or to determine page content for the purposes of offering contextual ad placements. Regardless of their use, however, they do not deliver ads to consumers and can therefore wreak havoc on ad delivery and validation, causing a lot of wasted ad impressions and skewing the results of advertising effectiveness measurement. An analysis of vCE Charter Study campaigns showed that the average campaign in the study had 0.16% of total impressions being delivered via these spiders and bots, with a range of 0.03% to 0.49% (See Figure 18).

Figure 18 Percent of Total Impressions Delivered Via Non-Human Spiders and Bots as per IAB List





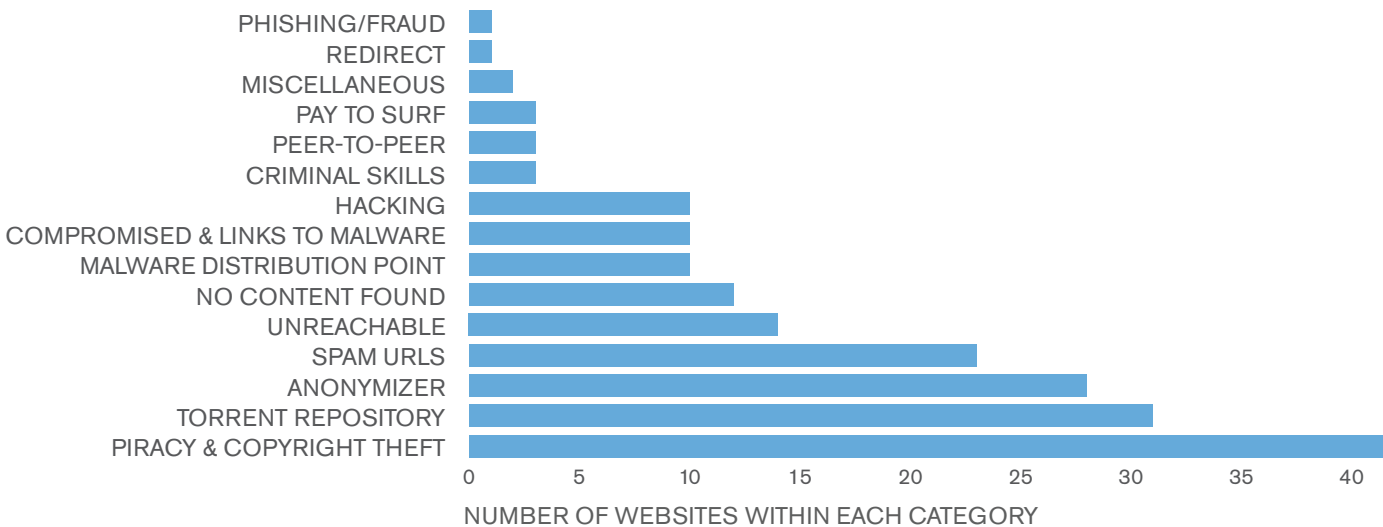
No brand is immune from fraud, and it should be an area of concern for all players in the ecosystem.

SITES WITH INTENTIONALLY FRAUDULENT & ILLEGITIMATE ACTIVITY

In addition to known spiders and bots, part of the vCE Charter Study analysis included an evaluation of fraudulent impressions that were intentionally delivered via illegitimate online activity. Campaign delivery was manually reviewed 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 was used to either confirm or negate the hypothesis.

The analysis revealed more than 200 sites that were guilty of this type of fraudulent delivery. Figure 19 below outlines some of the most common categories of sites with such activity. Additionally, the investigation uncovered that one of the sites delivered almost two million ads in the vCE Charter Study, supporting the need for consistent hygiene on campaigns to accurately measure delivery and ensure only ads that are delivered to actual humans are counted in validation and effectiveness measurement. Again these ads were not blocked from serving for the purposes of this study but instances of delivery were measured.

Figure 19 Custom Categorization of Sites with Intentionally Fraudulent Activity



While these two categories of fraudulent ad delivery accounted for only a small percentage of total ad impressions in the vCE Charter Study, there are a variety of other sources of fraud that consistently result in significant waste. For perspective, of the approximately 1 trillion URLs that comScore processes each month (40% more than all the traffic of the entire U.S. Internet population), **the application of comScore's full suite of fraud detection technologies identified levels of fraud ranging from 3% to 10% for a given campaign.** Clearly, no brand is immune from fraud, and it should be an area of concern for all players in the ecosystem.

Implications: Putting all of the Pieces Together

The vCE Charter Study demonstrates that each dimension of ad delivery – viewability, audience targeting, geographic targeting, brand safety and fraud – has a significant impact on whether or not an ad has an opportunity to achieve its intended objective, and should therefore be a central component of ad delivery validation measurement.

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

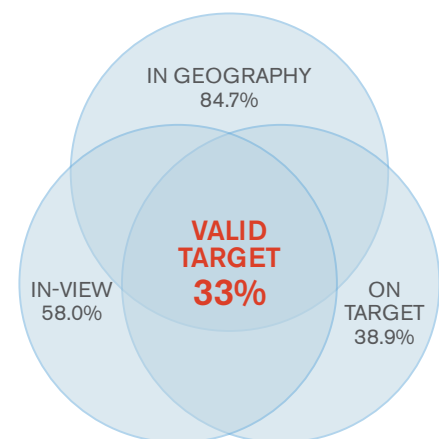
IN ONE CAMPAIGN WHEN MEASURED INDIVIDUALLY, THE FINDINGS SHOWED THAT:

38.9% of the ads were delivered to the right target audience

58.0% of the ads were delivered in-view

85.7% of the ads were delivered in the right geography

Figure 20 Intersection of Percent of In-View, In Geography and On Target Ad Impressions Delivered For a Sample Campaign in vCE Charter Study



Because of duplication across these three dimensions, one cannot simply sum the percentages, as this would suggest that 155.9% of the ads were delivered according to plan or that 118.4% of the ad impressions didn't deliver well. Instead, through the use of a single ad tag and a single measurement solution, vCE is able to validate that a **combined total of 33% of the ads were delivered according to plan** (See Figure 20).

IMPLICATIONS

Putting all of the Pieces Together

Prior to the introduction of vCE, the technology to validate all campaign impressions against core criteria was not fully available. The vCE Charter Study demonstrates that the technology now exists to identify and correct the source of sub-optimal performance, and that the opportunity to do so is substantial. In fact, in a perfect world, advertisers and publishers can contract and pay on the basis of impressions that were served for the campaign, but have also fully met the validity criteria.

vGRP: A TRULY CROSS-MEDIA COMPARABLE METRIC

In order for marketers to plan, measure and evaluate media across channels, they require digital campaign delivery measurement that can be translated into traditional metrics, like reach, frequency and gross rating points (GRPs). A central component of vCE is the validated GRP, or vGRP. The vGRP provides the industry with a cross-media comparable GRP metric that is also meaningful in the context of how online advertising works.

vGRPs are calculated by removing all ad 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, 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 Figure 21). In this example, using non-validated impressions, the campaign appears to have delivered 46.7 GRPs. When using validated impressions, however, the campaign delivered 20.7 vGRPs, yielding a vRatio of 44%. This delta between GRPs and vGRPs in digital media demonstrates the volume of waste occurring, and highlights significant areas for improvement.

Figure 21 Gross and validated GRP for a Sample Campaign in vCE Charter Study

	GROSS	VALIDATED	V RATIO
Reach	8.7	4.9	56%
Frequency	5.4	4.2	79%
GRP	46.7	20.7	44%
TRP	61.4	24.5	40%

Conclusion: vCE Charter Study Key Themes

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

1 **Marketers are not necessarily getting what they expect when they buy online ads.** From ads delivered next to objectionable content to ads that never had the opportunity to be seen, there are countless examples where the digital medium is simply not delivering on its promise.

2 **The way online advertising is delivered varies significantly by site, placement and even creative.** Across all dimensions of ad delivery, the vCE Charter Study demonstrated clear examples of situations where ad impressions were largely wasted. These findings suggest that measuring all dimensions of ad delivery for every placement in a holistic fashion is critically important.

3 **Regardless of the quality of the buy, there is almost always room for improvement.** Advertisers 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 medium, 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 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 realize that value.

About comScore

comScore, Inc. (NASDAQ: SCOR) is a global leader in measuring the digital world and preferred source of digital business analytics. comScore helps its clients better understand, leverage and profit from the rapidly evolving digital marketing landscape by providing data, analytics and on-demand software solutions for the measurement of online ads and audiences, media planning, website analytics, advertising effectiveness, copy-testing, social media, search, video, mobile, cross-media, e-commerce, and a broad variety of emerging forms of digital consumer behavior.

comScore services, which now include the product suites of recent acquisitions AdXpose, Nedstat, Nexius XPLORE, ARSGroup and Certifica, are used by more than 1,800 clients around the world, including global leaders such as AOL, Baidu, BBC, Best Buy, Carat, Deutsche Bank, ESPN, France Telecom, Financial Times, Fox, Microsoft, MediaCorp, Nestle, Starcom, Terra Networks, Universal McCann, Verizon Services Group, ViaMichelin and Yahoo!.

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