Addendum: Viewability Project Background and Data Analysis

Preface:

MRC's overarching goal when developing industry standards for media measurement is to develop metrics that can be widely used across the industry to facilitate better "apples to apples" metrics comparisons, both within and across media types. These standardized metrics are not necessarily designed to result in the exclusion of any other possible metrics, but having commonly defined metrics allows for consistency in reporting and analysis, and serves as a baseline under which all users of the data may operate with a common understanding.

Furthermore, most parties involved in the standard setting process, including the Making Measurement Make Sense (3MS) principals (the Association of National Advertisers, the American Association of Advertising Agencies, and the Interactive Advertising Bureau) and 3MS's cross-industry Blue Ribbon Task Force, have expressed a strong preference that simplicity and consistency be key tenets of media measurement standards. Specifically, they cite the difficulties posed to data utility when disparate and inconsistent standards and definitions exist within and across media types. As a result, MRC looks for compelling and material evidential matter and support (relative to the preponderance of evidence available) when considering codifying any additional complexities or inconsistent aspects of standards.

In the MRC's Viewable Impression standards efforts over the last several years, MRC has endeavored to create a metric called a "Viewable Impression" that can be commonly applied to digital advertising that attempts to operationalize when the moment of "opportunity to see" (OTS) a digital ad has been definitively established. Our efforts in no way try to capture a common moment when OTS occurs for every single digital ad occurrence; that would be an impossible task, and, in any event, is not the purpose of an industry standard metric such as the Viewable Impression. Rather, the industry standard is based on criteria that can be commonly applied against all ads of a similar type, with, in this instance, the desired end result being that the vast preponderance of ads of that type that meet or exceed the qualifications for being considered a Viewable Impression will indeed have resulted in the establishment of OTS, while the vast preponderance of ads that do not meet the criteria will not have achieved OTS.

A Viewable Impression is, as noted above, an operationally defined metric based on the achievement of specific minimum thresholds as detailed in the MRC's *Viewable Impression Measurement Guidelines* and *Mobile Viewable Impression Measurement Guidelines* documents. Just because an individual ad exposure may not meet the criteria to be classified as a Viewable Impression does not necessarily mean OTS was not established for that ad; likewise, an ad for which OTS is achieved should never be called a Viewable Impression unless it also meets the necessary criteria as such under the operational definition. A "Viewable Impression" is an industry metric that attempts to approximate that OTS exists for the vast preponderance of ads that meet the necessary criteria; it is not a guarantee that OTS was established for an ad. In this context, we

believe our *Viewable Impression Guidelines* achieve our goals, using the best information at our disposal as of this date, and will continue to serve to improve digital advertising measurement and in so doing, move the digital advertising industry forward. We thank all those parties who have contributed their time, thought and data to these efforts.

Background[1]:

The following represents a relatively simple model of the digital advertising process, calling out key mileposts that can serve as effective points at which a measurement can occur:
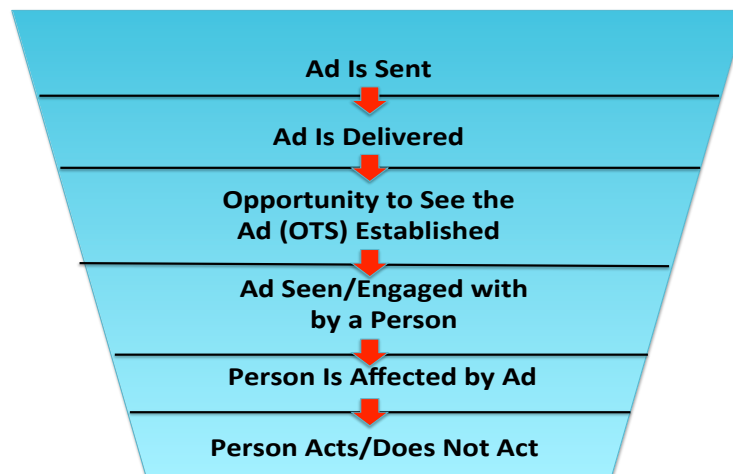
Following the flow of the diagram, a digital advertisement is sent from an ad server in response to a request from a web browser or application. The ad is then delivered to the requesting source. Once received, the ad is then formatted and rendered to the web page or application; it appears on the screen within the view of the user of the browser or application (i.e., a person); the person recognizes the ad (assuming there is clarity that it is an ad), and cognitively processes the ad's message; and, ultimately, the person may choose to act upon the message (or may choose to not act upon the message). Note those points in the above diagram beyond the establishment of the Opportunity To See (OTS) are similar to classic "Awareness—Interest—Desire—Action" (AIDA) marketing models and theories of the sequence of the purchase funnel, but the first three points, in contrast, are focused exclusively on the successful delivery of the ad.

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[1] This section derived primarily from: Gunzerath, D., Ivie, G., and Torrieri, A., "The Media Rating Council's Roadmap For Enhancing Digital Measurement," presented at 2015 Print and Digital Research Forum, London, England (https://www.pdrf.net/wp-content/uploads/2015/10/33_Syn47GunzerathMRCDigitalRoadmapSess4.pdf).

Again, while the above diagram is simplified, it is a useful construct for understanding the pathway for a digital advertising model, as well as a guide for the development of a measurement system that provides the necessary intelligence an advertiser seeks to analyze its digital advertising efforts.

Opportunity to See (OTS) the Ad Established: Measurement that occurs at the moment of OTS takes client side served ad impression counting several critical steps farther. For one, it assures that the ad has actually rendered, which occurs subsequent to the actual receipt of the ad by the browser or application. And, importantly, it establishes that the ad actually appeared in a portion of the screen that could be visible to an end user, and it did so for a length of time that theoretically would enable a user to see it and to cognitively recognize it as an ad. Thus, the opportunity to see the ad exists. Keep in mind this is not a guarantee that the ad was actually seen, only that the opportunity for it to happen had occurred.

The ability to determine the "viewability" of digital ads was a result of technological breakthroughs that occurred during the several years immediately prior to the start of the viewability guidelines development project. Concurrently, the Making Measurement Make Sense initiative (a joint industry initiative, or 3MS) was also ongoing, and MRC staff and the 3MS principals and their consultant were meeting frequently to discuss the current state of digital measurement, and opportunities that existed to improve it.

As a result, the concept of viewability, and the potential it represented to allow for a measurement based on OTS, rather than reliance on a measurement of served ads utilizing a client side counting approach, that, at best, would approximate (and necessarily overstate) the number of those digital ads for which OTS occurred, became a centerpiece of plans for improving both the quality of digital measurement, and to serve as a foundation for making digital measurement more directly comparable with measurements of other media types in which OTS is largely a given. Thus, the move to a viewable impression standard became the first target goal for 3MS when it issued its "Five Principles for Digital Measurement."[2]

The creation of an industry standard for measuring viewable impressions clearly serves to advance the quality of digital measurement by presenting a demonstrable improvement in quantifying those ads for which an opportunity to see existed than did the previous currency measurement method based on client side measured served ads. That alone is a compelling reason for industry adoption. But in the longer term, in MRC's view, an even more important reason for the adoption of viewable impressions as a primary measurement by digital advertising buyers and sellers is that it establishes a core measurement of ad impressions that is more directly comparable with that of other media where OTS is also already integrated. Until the time when viewable impression

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[2] Press release, "Leading Marketers, Agencies and Publishers Agree on Ground-Breaking Guiding Principles of Digital Measurement," June 13, 2011
(https://www.ana.net/content/show/id/21588)

measurement became feasible, digital ad measurement remained at a disadvantage in comparison to a medium like television, which has certain inherent measurement mechanisms that allow for verification that an ad/commercial message was, in fact, delivered.

With the advent of a digital measurement that also integrates OTS, digital providers have the opportunity to create and provide audience-based measurements that not only enhance the ability to understand the demographics or other characteristics of the people to whom the ad was delivered, but these measures also can be more directly compared with and/or combined with television audience measurements, as well as those of other media measurements into which OTS is built.

While some digital measurers provided audience-based metrics, such as Gross Rating Point (GRP) estimates, prior to the establishment of viewable impressions, these metrics were of limited utility to data users if they included instances where OTS had not occurred, and therefore direct comparisons to or combinations with television ad impressions were, at best, of limited value. Similarly, such estimates that were not inclusive of the OTS premise could misinform advertisers seeking to understand the return on investment (ROI) of their digital or cross-media ad campaigns, for an ROI analysis properly should consider the return based on those to whom the ad message has been exposed. The use of viewable impression-based measurements corrects for these deficiencies, and provides a basis upon which other data may be leveraged to attribute audience characteristics to viewable ad impressions in a manner that allows for richer analysis of digital advertising and the audiences it reaches, and opens the door to realizing the ability to consider advertising across media platforms in more informed and appropriate ways.

For further information on the evolution of the viewable impression and the MRC's roadmap for digital measurement, see Ivie, G., "The Adoption of Viewable Impressions – Status," presented at 2013 Print and Digital Research Forum, Nice, France (https://www.pdrf.net/wp-content/uploads/2013/11/36Ivie.pdf) and Gunzerath, D., Ivie, G., and Torrieri, A., "The Media Rating Council's Roadmap For Enhancing Digital Measurement," presented at 2015 Print and Digital Research Forum, London, England (https://www.pdrf.net/wp-content/uploads/2015/10/33_Syn47GunzerathMRCDigitalRoadmapSess4.pdf).

Details of the collective analyses to determine both desktop and mobile viewability thresholds follow. This effort reflects analysis of over 6 billion impressions across thousands of campaigns and creatives and is further informed by several years of viewability accreditation auditing and reconciliation work.

Desktop Viewability Analysis:

Objective:

MRC began to develop industry standards for desktop viewable impression measurement in 2012, and conducted research to understand the state of the industry and its readiness to transition to a currency based on viewable impressions rather than served impressions, involving extensive investigation and testing. Much of this testing was focused on establishing when the moment of OTS occurs with different formats of digital advertising, and developing general thresholds for what should constitute a "viewable impression" with this intelligence in mind.

The Viewable Impression is not intended to represent an "Engagement" metric, nor a measure of an ad's effectiveness; rather, it's about a generalized minimum OTS and the moment of qualification for a GRP or other similar audience-based metric.

Desktop Display:

Historical research on ad cognition supported a one second minimum threshold. Specifically, one second was based on research into underlying cognition of physical (display) advertisements, which generally show it takes sub-second to one second of continuous time to recognize an advertising message. Such research was reviewed and considered by Bain & Company when consulting 3MS related to principles leading to a recommended minimum threshold of one second in view (per Bain & Company "Some minimum time is required to avoid gaming … For the duration requirement, experts are supportive of a 1 second in view standard").

The MRC undertook a pilot study in 2012 to further analyze the efficacy of a one second threshold as well as potential pixel thresholds for desktop display viewability.

Data Requirements:

Data from a series of live production campaigns conducted in May-June 2012 using agency ad servers were collected to gauge the impact of establishing a viewable impression metric for desktop display ads. Testing occurred in three phases: (1) Technical Verification, (2) Small-Scale Production Testing in an Isolated Environment, and (3) Production/Parallel Data Launch.

We required the following metrics to be reported by the ad-server participants for each phase of the pilot:

- Test impressions fired from automated tools
- Served Impressions
    - Served Impressions based on created obstructions or variable viewability conditions – should not be impacted
- Viewable Impressions

- Viewable Impressions based on created obstructions or variable viewability conditions – compare to pre-scripted expectations
- Quantify cases where viewability could not be determined; delineation of causes if known; for example penetration of nested cross-domain I-frames
- Reporting of viewability parameters – pixels viewable, time viewable, etc.
- Dates, Times, Cutoff

Confidentiality of Submitted Data:

Data supplied to MRC for this project is maintained under strict confidentiality. MRC has committed to not share the identity of participants and will not share results on an individual or attributed basis with anyone nor any otherwise potentially identifiable data – any results that are reported from this testing are generalized and anonymously reported by MRC.

Analysis and Results:

A total of 22 campaigns were included in the pilot, representing more than 3 billion served impressions that ran in a variety of different environments (17 advertisers and 12 agencies were involved). Agency ad servers utilized for the pilot were required to be MRC accredited.

Efficacy of desktop display criteria were examined through extensive data analysis based on this 2012 pilot study, which included more than 3 billion display impressions served in production environments. MRC/Industry Pilot findings showed a 50% and one second threshold for desktop display to be a reasonable position. Specifically, pilot results showed that if the 50% pixels/1 second criteria were met, the entire display ad was viewable in nearly 80 percent of the cases. We believe that percentage is likely higher today, as sites are better optimized for viewability than they were in 2012.

The desktop display viewable impression definition requires 50% of the ad's pixels (30% of pixels for certain large format ads) to be in view for a minimum of one continuous second.

Desktop Video:

The MRC used the desktop display pilot results as a basis for beginning to analyze desktop video viewability. A balance was sought between the seller's obligation to deliver OTS, and the buyer responsibility for creative execution of the ad.

Data Requirements:

Our study of video impressions in 2013 included the following data requirements:

- Type of content (long-form, short-form, in banner, etc.)
- Type of Ad:

- o Length
- o Location within the content video (pre, post, mid, etc.)
- o Location on page
- o Serving method (in-house, third-party)
- o Contained within iframe or not
- Summarized for each campaign:
  - o Percentage viewable using 50% and first frame, first second, 5 seconds, 25% of length, 50% of length, 75% of length, entire video ad, any notable viewing not at the beginning that meets pixel requirement
- Sort data by common ad creative, campaign and site genre

Confidentiality of Submitted Data:

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Analysis and Results:

MRC reviewed a large volume of data, which included premium sites, portals, smaller sites and ad-network inventory (nearly of a billion impressions across hundreds of sites; in total well over 1,000 creative executions were included).

Several analyses of the data were prepared:

- Fall-off of video viewable impressions based on duration – first frame, 1 second, 2 seconds, 3 seconds, 4 seconds, 5 seconds, each of 4 quartiles.
- Examined fall-off based on varying creative and sites.
- Looked at data using a linear model to separate the effects of creative from the effects of the domain. Later adjusted the model to also account for ad length, which impacts creative variation – Goal: see when user actions begin to happen, regardless of creative effectiveness.

We also isolated user actions from creative quality. Across many sites, creative executions, and using varying viewable time thresholds (0.5 through 5 seconds), we examined viewable rate versus proportion of creatives with that viewable rate. Overall, viewable rate distributions appeared increasingly variable (wider normal distribution) the greater the viewable time (a tighter distribution indicates users have taken less actions).

Our study of nearly 1 billion video impressions showed that, when controlled for other factors, users' actions (including in-unit clicks, click through and player interactivity) related to the ad became statistically significant (at the 95% confidence level) at a point between 2 and 3 seconds after initiation of the ad. Since user actions related to the ad necessarily follow the moment of OTS, the time criterion for a viewable video impression

was set at 2 seconds (see reference to discounting below as part of the mobile viewability section).

The desktop video viewable impression definition requires 50% of the ad's pixels to be in view for a minimum of two continuous seconds.

Desktop Viewability Conclusion:

MRC operationalized the concept of OTS in digital advertising through its Desktop Viewable Ad Impression Measurement Guidelines, which were originally issued in mid-2014. The guidelines as issued by MRC in 2014 established definitions for desktop viewable impressions for display ads (a minimum of 50% of the ad's pixels must be in view for a minimum of one continuous second) and digital video ads (a minimum of 50% of the ad's pixels must be in view for a minimum of two continuous seconds), as well as a series of related metrics that are required to be reported with viewable impression measurements.

Marketplace implementation guidance on adoption of viewable impressions was issued by MRC in October 2014 and since that time the ongoing use of the MRC accreditation process has served to promote the adoption of best practices in viewability measurement processes.

Desktop Viewability Guidelines and Reconciliation

Subsequent to the initial release of the Desktop Viewability Guidelines in 2014, The MRC has completed 3 phases of vendor reconciliation work designed to isolate all material causes of discrepancies. The reconciliation process was always planned as some counting differences were expected (similar to publisher vs. 3rd party ad servers in served impression counting a decade ago). A critical mass of accredited vendors was necessary prior to beginning a reconciliation effort, but expected reasons for differences in counting incudes different measurement orientations (3rd party vs. ad server vs. publisher), differences in abilities to measure in all situations, differences in processes and/or ordering of processes applied.

This work led to updated Version 2.0 of Guidelines, issued by MRC on August 18, 2015 (http://www.mediaratingcouncil.org/081815%20Viewable%20Ad%20Impression%20Guideline_v2.0_Final.pdf).

MRC's work in this area going forward will be such that the audit and accreditation process will replace ad hoc reconciliation testing as the primary means for achieving and maintaining consistency in accredited vendors' measurements. Issues will be investigated and run to ground as they arise in audits and as special circumstances are brought to our attention. Additional guidance and updates to *MRC Viewable Impression Guidelines* will be provided as needed.

Mobile Viewability Analysis:

Objective:

The Media Rating Council (MRC), in its ongoing effort to set guidelines for mobile viewability in both Mobile Web and Mobile Application (In-App) environments, analyzed specially structured data regarding mobile traffic and user interaction. Some key questions for which we sought insights through the data that subcommittee volunteers made available to us were:

- Do the time requirements necessary to fulfill an industry wide "opportunity to see" (OTS) criterion differ significantly for mobile from what exists in desktop environments?
    - What data-based evidence exists concerning the average minimum time needed for ad recognition (based on exposure of an individual ad) to occur?
    - If evidence exists that the time requirements for OTS differ for mobile, does this hold true for both display and video ads?

- Do user interactions with content and advertising in mobile browser and mobile application environments differ significantly?
    - If so, how? And do these differences affect how the criteria for the OTS should be defined for each environment?
    - Differences in application structure; News Feed, swipe, tap, etc.

See the *MRC Interim Guidance on Mobile Viewable Impression Measurement* issued May 4, 2015 for further details on MRC's approach to setting mobile viewability guidelines:

http://mediaratingcouncil.org/050415_Mobile%20Viewability%20Interim%20Guidance_final.pdf

Data Requirements:

For each submitted campaign, MRC received and analyzed the following information at the placement level:

- Specifics concerning the ad type, ad format, ad size, and any special features about the ad that should be considered (for example, whether it is an expandable ad, or a multi unit ad, a non-IAB standard ad unit, or any other attribute that distinguishes it from a typical display or video ad).
- The precise dates on which the ad measurements reported began and ended.
- IAB served impressions as a basis for subsequent interaction and time measurement.
- Environment (News Feed, slide/swipe, etc.)
- Device and OS

- Production data from production campaigns. Mobile data, not desktop data. This data was requested to be filtered to include mobile only and be segregated or include fields that allow segregation (where possible) by the following ad types:
  - Mobile Web Display Ad
  - Mobile Web Video Ad
  - Mobile App Display Ad
  - Mobile App Video Ad
  - Mobile Web Rich Media Ad
  - Mobile App Rich Media Ad
- We were not interested in viewable measured data (i.e., with the viewability determination made); we were interested in "raw" data with attributes, many of which may be relevant to viewable decisions.
- Granular time data is critical. Included was when the impression was sent, rendered, then within viewable port with time increment and time/duration in view (at least 10th of a second granularity, if possible).
- Pixel data was also examined, cross-tabbed with time. No pixels, one pixel, determination of percent pixels in view by time across intervals.
- User interactions with ad content – was analyzed, linked with time from ad-load. We tested these interactions statistically, linked with time from ad-load, to accumulate counts of actions by time. Including (where applicable):
  - X-out
  - Scrolling to or away
  - Clicks/Taps
  - Swipes
  - Any other points of interaction captured (excluding recall data)

In addition, all participants were asked to comply with the following test parameters:
- To the extent feasible, all participants were asked supply or at least maintain any supporting data that exists for the submitted campaign, to allow for further in-depth investigation of certain cases as deemed necessary by MRC. This included maintaining samples of the ad creative (or providing links to it), records of the impression-level pixel and time measurements, pertinent details concerning the ad's placement (the site or app on/in which it appeared, etc.), and any other variables that would enable a fuller understanding of unexpected or unusual measurement results. Granular data allows deeper analytics and statistical evaluation.
- Volunteering organizations were asked to provide in writing to MRC information on basic details of the data (including method of generating activity and anticipated timing).

Confidentiality of Submitted Data:

Data supplied to MRC for this project is maintained under strict confidentiality. MRC has committed to not share the identity of participants and will not share results on an individual or attributed basis with anyone nor any otherwise potentially identifiable data

– any results that are reported from this testing are generalized and anonymously reported by MRC.

Analysis and Results:

Eleven organizations provided data, four of which were publisher organizations. Over one billion impressions with some user interaction were analyzed from accredited (served or desktop viewability) and in-process measurement sources (over two billion impressions were analyzed in total). Several million impressions were considered from other sources, including certain (non-accredited) survey-based research data sets (ad effectiveness and recall) as well as eye tracking studies and sales/conversion data sets.

Please note that we don't believe ad effectiveness studies can provide compelling evidence related to our objective. Aside from the clear limitations and quality of the underlying research behind most ad effectiveness studies we see in the marketplace today, keep in mind that we're not seeking to measure an ad's effectiveness, nor to assess the transference of a brand's message. Rather, we're seeking to identify the moment when OTS occurs. Such studies were considered, but in isolation did not serve as a compelling material input into the data summarized below as they simply are not specific enough to establish the OTS moment.

Analyzed data included Mobile Web (mobile browser and embedded in-app), Mobile Application, mobile phone, tablet, video and display impressions. Data was analyzed by placement and creative type where available.

Similar to the desktop video analyses conducted, several analyses of the data were prepared including fall-off of viewability and interaction[3] based on duration as well as varying creative and sites. Our primary analysis involved using a linear model to separate the effects of creative from the effects of the domain, accounting for creative type in order to examine when user actions begin to happen, regardless of creative effectiveness.

Our analysis isolated user actions from creative quality across many sites, creative executions, and using varying time thresholds (millisecond granularity).

<u>Topline Results:</u>

Data sets and fields were highly diverse, indicative of a high degree of variability of processes at measurement organizations.

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[3] Statistically significant changes in viewability when analyzed longitudinally are direct indicators of the impact of various time thresholds and such analyses are consistent with analyses performed as part of Desktop Viewability Research. User interaction requires, by definition, an OTS moment prior to a subsequent interaction. For these reasons MRC believes the combination of these two analyses represent the most compelling evidence of OTS available to us.

Similar to desktop data analyzed, overall interaction distributions appeared increasingly variable (wider normal curves) the greater the viewable time (a tighter distribution indicates users have taken less actions).

Pure "News Feed" data was limited, although News Feed data was included in the analyzed dataset.

Key Observations:

Rendering is Critical: Rendering times observed in mobile were more pronounced than desktop, averaging almost 5 seconds from time of ad serving. <u>As a result, we have required rendered ads prior to the execution of viewable decisions.</u>

Viewable Parameter Observations:

- Display curve-inflection occurred at 1.5 seconds, based on user interaction.
- Video curve-inflection, similarly, appeared to be near the desktop guideline at 2-3 seconds.

"Discounting" of Actions to estimate moment of OTS: User interaction generally includes both the OTS and reaction time required to take an action. Similar to the desktop viewability methodology employed, inflection points were "discounted" to account for reaction when determining the minimum OTS. This discount was approximately .5 seconds based on the distribution of data, similar to that employed in desktop viewability threshold determinations.

While there is existing research related to reaction tine in humans (one such study suggests reaction time is approximately 150 –200 ms[4]), any discount for reaction time from the point at which we have evidence of OTS (the interaction) should necessarily be conservative absent any additional supporting evidence. We sought to balance a supportable approach to the discount with consistency concerns, and the latter led us to be even less conservative than we might otherwise have been.

As part of our request for data, MRC requested data aimed at empirically quantifying reaction time as a means of more precisely determining the discount applied to user interaction data including the use of offline and eye tracking studies. While this included examining and making recommendations for re-performing and scaling offline studies, no strong, defensible and passively collected evidence or other compelling data was ultimately provided.

Absent evidence that OTS occurs widely at a point that's much earlier than measurable interactions, MRC used the above solid proxies for OTS and

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[4] Kaoru Amano, Naokazu Goda, Shin'ya Nishida, Yoshimichi Ejima, Tsunehiro Takeda, and Yoshio Ohtani, "Estimation of the Timing of Human Visual Perception from Magnetoencephalography" as published in *The Journal of Neuroscience*, April 12, 2006.

derivation of a discount. As we know that OTS is a subset of the total time for a user interaction, MRC assumed approximately 1/3 of the total time of significant interaction consistently represents reaction, which we believe is reasonable at this point. Data may develop on this in the future and will be considered for future iterations of viewability guidance and discount factors.

- Some faster interactions (below the desktop guideline thresholds) were noted (< .5% of all data analyzed). However, MRC considered this in the context of the need to weigh where to place the "industry" guideline based on the material propensity of data observed.

  Accidental Interaction and IVT: Ancillary data and observations have indicated that more incidental or accidental user interaction (without OTS or cognition) may occur in mobile environments than desktop environments based on screen size and creative types (full screen interstitials served during normal content interaction). The MRC intends to explore this concept with the IAB Modernizing Measurement Task Force (MMTF) as part of future updates to Click Measurement. Additionally, much of the data collected and analyzed in this effort was provided prior to the finalization and requirement of updated Invalid Traffic requirements as part of the MRC's IVT Addendum. It should be noted that such phenomena, if present in the analyzed data, might serve to further explain a portion of interactions that occur earlier than the desktop guideline thresholds.

Notewrithy Observations from Certain Individual Data Sets:

- 80% of In-App ads rendered; of those rendered approximately 80% were viewable (using desktop parameters), sometimes higher.
- 74% of Mobile Web ads rendered; of those rendered approximately 50-60% were viewable (using desktop parameters).
- Mobile Web totally out-of-view ads were substantially higher upon render (approx. 20%) than In-App ads upon render (approx. 10%).
- 79% of the time the first quartile of a mobile web video ad played, 0 pixels were visible.

Over the last several years, the state of viewable impression measurement has advanced significantly. For instance, MRC's desktop display pilot testing in 2012 showed that an extremely important quality metric, a measurer's ability to fully measure ad campaigns for viewability, varied greatly because of measurement technology limitations that existed at the time, particularly when it came to certain challenging environments in which many online ads appeared. These obstacles have been largely overcome since then, as evidenced by the significant improvement seen in viewability vendors' "measured rates," which is the percentage of served impressions for which a decision concerning the ad's viewability can be made. Measured rates of MRC-accredited viewability providers today is typically no lower than the 85-95%+ range, whereas in 2012 pilot testing, measured rates for campaigns often fell well below 50%.

Minimum measured rate expectations have not yet developed and were not directly observable in the analyzed data set. The MRC will be deriving this through audit experience.

Mobile Viewability Conclusion:

Data reviewed related to mobile viewability supports the use of the desktop thresholds (50% Pixels and 1 Second for Display; 50% Pixels and 2 Seconds for Video) for qualification as Mobile Viewable Ad Impressions in both News Feed and Non-News Feed environments. See the *Mobile Viewability Guidelines* for further details on News Feed, including Sub-Second impressions.

The MRC intends to continue to accept and review data related to News Feed environments and any other mobile environments that may exhibit differential OTS as part of a periodic update of these guidelines. Such data will include seeking evidential matter that can convincingly demonstrate OTS happens much earlier than the user interaction would indicate to more precisely determine the OTS among passively collected data. In addition, we expect that information gathered as part of accreditation audits against these guidelines will further inform potential future updates.