

MRC Outcomes and Data Quality Standards

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1 General Summary

1.1 Overview and Scope

This document represents the Media Rating Council's (MRC's) effort to set standards for data quality and attribution of outcomes (Outcomes referred to generally throughout this document) to ad exposure and engagement as part of its ongoing effort to develop standards for media and advertising measurement. More specifically, these standards are designed to provide guidance and requirements for data collection, cleaning and integration as well as include a focus on the use of data sets and the process of determining the user actions that lead to desired outcomes between ad exposure, interaction/engagement and conversion.

MRC has been working with our partner industry associations for many years to evolve standardized digital metrics so that digital media could be compared and combined with legacy media such as TV to truly enable cross-media planning, buying and selling. After all that work, which included intense efforts to coalesce a large group of industry participants around minimum standards and to reduce advertising waste, we finally reached an inflection point where we could write a cross-media framework (which was completed in September 2019).

This framework was also necessary to begin work on the ultimate goal, measurement of Outcomes and Return on Investment (ROI), but was a step that had to be completed, as Outcome measurement without corresponding accurate delivery and exposure measurement is not actionable and will lead to misallocation of media spend. With these standards now in place, MRC believes there is now a framework to enable independent, validated data with sufficient granularity to support consistent measurement and enable connections to accurate Outcomes measurement.

As the media measurement landscape evolves to include more cross-media and hybrid measurement models and as privacy regulation makes demographic data more fragmented and less ubiquitous, large scale data sets become increasingly important, not only as the sole source for analytics products, but also as a key input into exposure, engagement and Outcomes measurement models. While the MRC believes our *Minimum Standards for Media Research* and previous *Data Integration Guidelines* serve as a helpful framework for evaluating large data sets, we also believe more specific and focused guidance was required to be developed related to data acquisition and processing, most appropriately in conjunction with standards for attribution of Outcomes to ad exposure and engagement. As such, these standards also focus on the quality, validity, recency, granularity and accuracy of datasets as it relates to their intended use.

Beyond direct value Outcomes metrics, advertising ecosystem participants and vendor services also measure downstream or bottom of the funnel post-conversion metrics that are both

cognitive (consumer mindset) and behavioral (consumer behaviors related to a brand or product).

There are certain cognitive and behavioral aspects of methodology that may be involved in Outcomes metrics that go beyond passive measurement of exposure, engagement or sales and involve measurement techniques beyond simple studies/survey and panels. For example, these may include neuro studies, eye-tracking, cross-site behavioral and benchmarking analyses, etc. Likewise, more complex aspects of these products such as models that seek to disentangle the effects of media and creative represent difficult areas to standardize. While these metrics are included in this phase of these Standards to the extent they are derived from either first- or third-party measurement of exposure/activity, more advanced methodologies and models employed within them are intended to be addressed as part of a later phase of these Standards.

While many aspects of these Standards can and should apply to these studies and measures, they often involve more active traditional studies and survey research inclusive of panels as well as behavioral and cognitive research or studies when compared to more passively measured aspects of Outcomes described throughout this Standard. As such, the MRC intends to provide more detailed guidance and requirements related to them as a subsequent phase of this Outcomes project.

1.2 Standards Development Method

The Standards contained in this document originated from a project led by the Media Rating Council (MRC) with sponsorship from the Association of National Advertisers (ANA), American Association of Advertising Agencies (4A's) and Association of Canadian Advertisers (ACA). These Standards were developed with the participation of a large group of media content providers, advertising agencies, advertisers, vendors/consultants, measurement organizations and other interested organizations. These Standards involved the participation of major buyer-side trade organizations (ANA and 4A's) and their constituents and were thereafter provided to the public through a formal period of public comment prior to adoption.

These Standards will be re-assessed periodically to ensure they remain applicable over time.

1.3 Note on Privacy

These Standards are not intended to, and do not provide measurers with reasons or permission to deviate from privacy requirements. While MRC's measurement requirements and related auditing is not intended to directly assess privacy compliance, along with the general principles discussed in this document, data collection, processing and transmission processes are encouraged to adhere to applicable privacy regulations and requirements. Outcomes measurers should consider whether proper permissions and access rights are present including whether they clearly state in their privacy policies why they are collecting information and how it may be used and shared.

MRC acknowledges that such privacy requirements may prevent inclusion or otherwise require anonymization of some data fields, particularly those related to user identifying or targeting data. **It is critical that privacy be considered and protected in all aspects of measurement and further that this document contemplates potential restrictions and possibly complete deprecation of user level tracking in order to both respect these restrictions and create requirements that can operate within them. See Section 7.2 of these Standards below for more detailed requirements related to privacy as it intersects with Outcomes measurement.**

2 General Measurement

2.1 Measurement of Outcomes

2.1.1 General

Measurement of Outcomes generally consists of measurement of consumer action, sentiment or some other effect of media spend or advertising exposure. Relevant Outcomes can vary based on goals and the approach of media spend or campaigns. These goals and approaches should be considered when determining which Outcomes to analyze or attempt to attribute/associate to media spend or advertising. In other words, the Outcomes analyzed, associated or attributed to media and advertising activities should be relevant, logical and aligned with user goals when utilizing them as measures of success or Key Performance Indicators (KPIs), while supported by consistent definitions and approaches.

To be clear, while client input and goals may drive the specific metrics, data and attributes used for Outcomes measurement, it is expected that the methodologies underlying the measurement against these objectives in terms of how data is assessed, considered and used as well as the methods to adjust data, are established and consistent across similar objectives. This does not mean that all processes must be automated or not subject to manual intervention as long as this is governed by consistent and documented methodological approaches. Measurement methodology that is variable and developed for a specific client that results in ad hoc custom reporting would be considered a custom methodology. However, it is not expected that all available reported metrics are applicable to all campaigns and objectives.

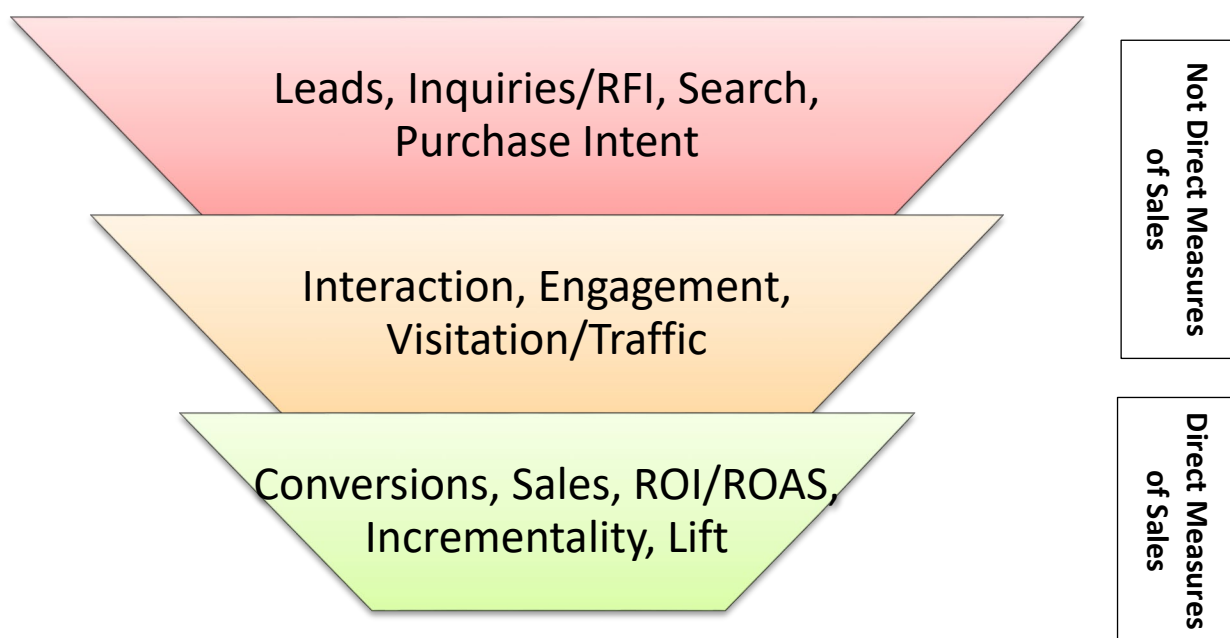
Further, the process of aligning measures of success and KPIs to goals or approaches should be formalized and documented including definitions of key terms and calculations.

Not all Outcomes discussed below are appropriate to be used as measures of success for all campaigns. The following sections are presented to help standardize the measurement of the various Outcomes prior to modeling or association/attribution to quantify them in the context of media spend or advertising exposure. These Outcomes measures are presented in relative “funnel” order, or more specifically, in the chronological order of which they may occur in the customer lifecycle from awareness to actual purchase and thereafter. “Upper funnel” measures, or those early in the consumer lifecycle, often have some value depending on campaign objectives, but do not directly represent sales, and as a result, are often less directly

correlated to sales than “bottom funnel” Outcomes measures that reflect actual sales resulting from media investment or advertising campaigns, although again, the relevance of these measures is dependent on campaign goals.

When the goal of a campaign is a purchase or other bottom funnel Outcome, upper funnel measures used as standalone proxies for success of such campaigns should include clear disclosure and agreement from end users. Outcomes presented in aggregate or during a specific time period without connection to specific media activity do not infer correlation or causality, but when these outcomes are presented by campaign or media vertical, there is an implication of correlation or causality that must be supported and further adhere to modeling and/or attribution requirements discussed later in these Standards, where applicable.

Outcomes measures should not be confused with or misrepresented as audience measures (i.e., exposure to media or advertising which are covered as part of various other MRC Standards and IAB Guidelines), although these measures in the context of Outcomes, and in some cases, as qualifiers for establishing correlation or causality of outcomes, are discussed further in these Standards. The following is a visualization of the organization of this Standard by the various metrics involved in and leading to Outcomes:



2.1.2 Leads (Not a Direct Measure of Sales)

Leads represent potential consumers who may have a need for or interest in a product/category or otherwise be targeted for advertising, but who have not provided any direct indication or communication that signifies purchase intent for a specific product. Leads may include past purchasers or consumers who have previously engaged with a brand and are generally an audience category for potential advertising targeting. Advertising campaigns may have a goal to generate leads and in these instances, lead generation is an appropriate measure

of campaign success. However, if a campaign goal is to generate interest in a specific product or to promote action, leads should not be used as a KPI for success or in determining incrementality (see Sec. 2.1.9 for more on incrementality).

Leads as a targeting characteristic may be more relevant if qualified in some manner either for marketing purposes or sales. Qualifying Leads often involves potential customers that have either visited a digital property or retail location associated with a brand or product and qualifying Leads on the basis of Sales often involves some indication of purchase potential. Qualified leads are highly encouraged to be used in place of unqualified leads for targeting purposes and are required to be used as a measure of campaign success when a specific goal of such campaigns. The basis of qualification must be disclosed, supported and demonstrable.

2.1.3 Inquiries and Requests for Information/RFI (Not a Direct Measure of Sales)

Exposure to advertising may cause a potential consumer to inquire or request further information from an advertiser. This can be done directly via interaction with a creative (such as a click through to a landing or an email link) or indirectly whereby a potential consumer visits an advertiser property or retail location specifically to request information or otherwise attempts to contact an advertiser related to a product or ad online, via email, via phone, etc. Such inquiries or requests for information may be used as a measure of success depending on campaign goals or to contribute to incrementality via attribution.

It is important that these inquiries or requests are able to be associated to the advertising for which they are used as a measure of success. For direct interaction such as engaging with a creative that leads directly to a related inquiry or request for information, this relationship is stronger, although measurement organizations must take steps to ensure the inquiries or request for information are in actuality related to the advertising campaign (same product or promotion, etc.) and truly represent incremental interest (as opposed to actions that do not represent interest or potential purchase intent such as unsubscribe requests, complaints, requests to be moved from targeting lists, etc.).

2.1.3.1 Search (Not a Direct Measure of Sales)

Use of search engines or searching a page or online marketplace for terms that directly or indirectly relate to a product or brand are often a useful measure of potential or expected value that may be correlated or attributed to direct or realized value Outcome measures (but should not be considered an Outcome in and of itself). It's important to note that advertising is often served to consumers using such search tools when the search terms are not directly related to a potential purchase or purchase intent. This advertising is subject to exposure measures, discussed further in this document, such as Impressions, Viewable Impressions, Duration, Clicks, and other engagement metrics that are likely more strongly related to bottom funnel Outcomes than the search itself, which must be considered and appropriately accounted for in attribution methodologies. Direct product searches, especially those in online marketplaces that can be directly tied to eventual purchases (such as a search and click through online conversion), are encouraged to be given greater weight or priority than indirect searches by users that eventually purchase. Further, measurement organizations are encouraged to segregate Paid

Search (such as it relates to keyword terms made available via auction) from Organic (non-Paid) Search for the reporting of Search metrics. The MRC will consider making this segregation a requirement in the future.

Search results can themselves also be measured using standardized Impression, Viewable Impression and Click measurement approaches (of the search results themselves) and related measurement standards requirements must be adhered to when measuring search activity. Search measures can also include the number of queries performed.

2.1.4 Purchase Intent (Not a Direct Measure of Sales)

History or behavior as well as other proxy measures of intent and consideration may indicate a potential consumer has an intent to purchase, which may be considered a lead if there has not been direct indication or communication that signifies purchase intent for a specific product. Alternatively, inquiries and requests for information may signify purchase intent as may other activities not specific to a product to gather information such as general education or transactional information.

Establishing intent goes beyond general need or interest inherent in the measurement of Leads, Inquiries or Requests for Information (although RFI involving enabling purchases such as store hours, etc., may indicate intent) in that there is some indication that a purchase of a category or product is likely. This intent must be directly observable or inferred based on behavior using empirically supported approaches.

2.1.5 Interaction (Not a Direct Measure of Sales)

Interaction and engagement with creatives may also serve as a KPI for campaign evaluation, but again, this must align with campaign goals and further, the type of interaction has a bearing on whether or not such interaction may contribute to incrementality or Outcomes measurement. While many interaction metrics exist, this Standard recommends a focus on simpler metrics that are readily measurable at scale, such as physical interactions like clicks or time spent/duration. While cognitive and emotional interaction and engagement metrics certainly have value, they are more difficult to define, measure and scale. Further coverage of lift and sentiment measures that include cognitive and emotional interaction metrics is included later in this Standard.

That said, such physical interactions tend to be more relevant to digital media as non-digital advertising creatives such as in linear television, print and radio are generally not interactable. As a result, cross-media consideration of interactions such as viewing and attention are important when measuring engagement with cross-media campaigns. Viewing and Attention are covered later in these Standards as part of Audience and Exposure. The remainder of this section focuses on physical interactions with digital advertising.

Physical interaction metrics that involve a user directly interacting with a creative may not always be positive or contribute to incrementality, and in fact some may detract or be negative.

Examples of positive interactions can include:

- Click (excludes click to close or exit)
- Tap (excludes tap to close or exit)
- Swipe (excludes swipe to dismiss)
- Hover/Expansions (Rich Media)
- Pause/Resume/Rewind Video (Play on Click to Play excluded as this precedes impression delivery measurement)
- Time Spent and Duration
- QR Scans

Examples of negative interactions can include:

- Click to close or exit
- Tap to close or exit
- Swipe to dismiss
- Skip, Advance, Mute

Similarly, there are social media interactions with creatives or brand properties that should be considered, but that also can be considered positive or negative. These include:

- “Like”, “Love”, “Thumbs Up”, “Upvote”, etc. a Post/Ad
- Share a Post/Ad
- Comment on a Post/Ad/Branded Content

Some social media platforms have included negative reactions (e.g., dislike, angry, thumbs down, downvote, etc.), but even the categorization of the above metrics as positive or negative is less precise as ads or posts may be shared or commented on with negative intent.

Interactions with ads and content utilized either in determining potential Outcomes or directly as a measure of Outcomes depending on campaign goals, must be clearly defined and empirically supported. Specifically, Outcomes measurers must define each social media interaction used in measurement and consider positive or negative value as well as disclose those qualifications along with “neutral interactions” (those not used/considered, or that do not influence their results) where applicable. Further, measurement vendors must consider the positive and negative aspects of social media interactions and either exclude any that are determined to not contribute positively or otherwise account for their negative impact on Outcomes. Reporting of interactions by their positive and negative effect is encouraged.

Further, interactions must correspond to a valid impression as defined by the IAB/MRC measurement guidelines that correspond to them and must be consistent with the IAB/MRC *Click Measurement Guidelines*.

In addition, as discussed further in this Standard, a base of viewable impressions (inclusive of allowances for “strong user interaction” as discussed further in this Standard and the MRC *Viewability Standards*) is required as an option for attribution of Outcomes. As MRC considers measurement of Outcomes and actions attributed to a user audience measurement, Sophisticated Invalid Traffic (SIVT) filtration is also required.

Given different advertiser preferences in regards to the role of viewability in effectiveness measurement, Outcomes measures that do not incorporate viewability and SIVT filtration (including Outcomes attributed to interactions) may still be reported so long as measurement consumers (generally referred to as end users or users herein) have the option to filter outcomes to only those that are downstream of viewable impressions. In cases where multiple methodologies (e.g. outcomes for all exposures versus only viewable exposures) are present, transparent labeling and clear disclaimers are required. Outcomes that are derived from non-viewable impressions (or non-measurable or non-measured for viewability) would not be considered fully compliant but can be audited and accredited as long as fully compliant corresponding metrics are also reported and audited where available and measured. Compliant metrics and non-compliant metrics should be differentiated through clear labeling in reporting.

Existing IAB and MRC guidance already covers technical specs of many of the above metrics (e.g., IAB and MRC have authored guidance related to Clicks, Viewability, Digital Video and Audience Reach and MRC has authored guidance and Standards related to Digital Audience and Social Media Measurement). This guidance must be adhered to when measuring interaction metrics that intersect it.

Clicks/Taps (Referred to collectively as “Clicks”)

As discussed in the IAB/MRC *Digital Video Impression Measurement Guidelines*, a tap (in mobile) or click that initiates a Click to Play video ad would not, in itself, be considered a click, as a valid video impression should not be counted as served until after the initiation of the stream, post-buffering (measurement should not occur when the buffer is initiated, rather measurement should occur when the ad itself begins to appear on the user’s browser as specified by IAB guidelines). Only subsequent clicks after initiation of a Click to Play video are eligible for consideration of click transactions. **The below requirements are specific to Clicks as part of Outcome measurement and are not meant to supersede or modify existing guidance and requirements for standalone Click measurement outside of Outcomes.**

When known, measurers are encouraged to utilize the Received Click (when a Measured Click reaches an advertiser’s property and is measured by an advertiser or an advertiser’s agent) for Outcomes measurement as the earliest point at which a click transaction is measured and reported. While it is permissible to report Measured Clicks, Received Clicks, where known, must also be reported for Outcomes measurement with clear labeling and distinction between these measures. Received Clicks, because they occur later in the referral cycle, are anticipated to be less impacted by latency, user abandonment, etc., than Measured Clicks.

Measurers should also report on events beyond Measured and Received Clicks such as Resolved Clicks, Post-Click Activity and Conversions where feasible. Further, use of user confirmation techniques (such as in the case of Confirmed Clicks whereby a user is requested or required to confirm or otherwise validate their intent to leave an origination site or property before being redirected to a subsequent site or property) is strongly encouraged for Outcomes measurement and may further facilitate proper validation and filtration of click transactions.

User activity to navigate (such as mouse scrolls in desktop and swipes to navigate in mobile) outside of Clickable Content will not be considered a valid advertising click transaction. Due to generally smaller screen size and the use of interaction to navigate certain mobile environments, navigational mistakes or incidental clicks may be more pronounced in mobile measurement. As such, measurement organizations should establish and empirically support repeat-click-refractory periods and other click qualifiers discretely and separately between desktop and mobile environments.

Measured, Received and Resolved Clicks are defined in the IAB/MRC *Click Measurement Guidelines*.

2.1.6 Traffic or Visitation: Online and Offline (Not a Direct Measure of Sales)

Another measure of Outcomes or a KPI utilized to determine incrementality can be traffic or visitation. Traffic or visitation may consist of digital property traffic such as to a site or application, or physical retail visitation such as foot traffic. The *IAB/MRC Impression Measurement Guidelines* and *Click Measurement Guidelines* include requirements for page visitation and click through landing measurement and the *MRC Location Based Advertising Measurement Guidelines* include requirements for foot traffic or physical visitation of stores and other locations. Measurement of such activities as part of Outcomes measurement must adhere to these requirements as applicable.

Moreover, foot traffic or physical visitation may be established through Point of Sale (POS) data, consumer credit data, panels, traditional offline surveys and online surveys. These modes are covered in greater detail throughout this Standard, and while all aspects of MRC accredited measurement must adhere to *MRC Minimum Standards for Media Rating Research*, certain aspects of these requirements are directly applicable to probabilistic survey and panel research and MRC has authored further guidance relating these requirements to non-probabilistic panel and survey methods. Such survey and panel methodologies must adhere to these requirements.

Establishing correlation or causality for traffic or visitation resulting from ad exposure may be more direct for digital visitation in the case of a click through landing or where referrals can be directly measured, however this is not always the case where the digital visitation may occur sometime after ad exposure or after some other activity (online or offline) in between the ad exposure and subsequent digital visit. Additionally, linking offline physical visitation to ad exposure of any kind is even less direct. Attributing Outcomes to ad exposures as well as resolving them at the individual level is covered as part of subsequent sections of this Standard.

2.1.7 Conversions (Direct Measure of Sales)

A Conversion is a derivative metric generally dependent on one or more of the above Outcomes measures and/or sales/purchases. More specifically, a Conversion is an action that may have been taken as a result of an advertising exposure that aligns with the campaign goal. Crediting a conversion implies attribution in that the Outcomes action is assigned or related to one or more ad exposures. While attributing Outcomes to ad exposures as well as resolving them at the individual level is covered as part of subsequent sections of this Standard, this section covers Conversion measurement more generally.

Conversions may occur Online, such as in e-commerce or digital actions, or Offline, such as in a store visitation or purchase. Again, like site visitation or store traffic, establishing correlation or causality for Conversions resulting from ad exposure may be more direct for Online Conversions in the case of a Clickthrough or Viewthrough Conversions or where referrals can be directly measured. However, this is not always the case where the Online Conversion may occur sometime after ad exposure or after some other activity (online or offline) in between the ad exposure and subsequent Online Conversion. Additionally, linking Offline Conversions to ad exposure of any kind is even less direct.

It should be noted that use of an offer code or coupon that was presented as part of an advertisement during a conversion is a potentially strong indicator of correlation and possibly causality for either Online or Offline conversions and should be considered as an important attribution signal where present. Measurement of Conversions does not require use of an offer code or coupon.

Section 2.2 below discusses requirements for measurement of exposure, including impression and viewability requirements. It should be noted that for online Clickthrough Conversions, the IAB/MRC requirements for a Click and the MRC requirements for a Viewable Impression are such that they are required to be preceded by and tied to a valid Impression. Furthermore, the *MRC Viewability Guidelines* include provisions for “strong user interaction” which allow for “strong user interaction” such as a click or tap as a proxy for viewability prior to viewable conditions being met with empirical support accounting for accidental or incidental interactions or navigational mistakes.

Beyond the general use of the term “Conversion” to represent any action taken as a result of an advertising exposure within a campaign goal, Conversions may also be used as an audience characteristic meaning potential customers that have converted to actual customers. In this instance, first-time purchases may be distinguished from repeat purchases whereby repeat purchases are not considered in the converted audience count. Such use of Conversion as an audience characteristic or exclusive of repeat purchases is permissible and viable, but must be clearly disclosed and distinguished from the general use of the Conversion terminology.

2.1.7.1 CRM and Sales Datasets (Direct Measure of Sales)

Measuring Sales and Conversions as well as downstream metrics such as Incrementality, ROI, Efficiency metrics and even Lift, largely uses some sort of sales dataset including online sales data, Point of Sale (POS) data for physical and in-store purchases, credit or banking data and Customer Relationship Management (CRM) datasets. Such datasets must be subjected to the data quality requirements detailed throughout this document, with particular importance and focus placed on the means of collection or sourcing where applicable, recency of the data (of particular importance when attempting to attribute the sale to a campaign), quality including granularity, specificity (of purchase type, product and online or offline/retail outlet), and completeness. Further, the source and nature of datasets used in whole or in part for measurement of Outcomes must be generally disclosed to users along with details of collection parameters (where known), editing and cleaning applied to it by measurers and *known* biases or limitations associated to it (such as systematic data omissions). Required disclosures include the orientation of the measuring entity as well as whether the measuring entity has the ability and permission to measure the transaction accurately (or not).

It should be noted that the fact that a CRM or sales dataset is supplied by an advertising client of a measurement vendor does not obviate the requirement to vet such datasets prior to use or reliance and to perform quality control procedures at minimum related to logical and completeness checks on such datasets initially and on a periodic basis. This does not require upstream auditing or validation of CRM or datasets used, but does require the measuring ingesting or relying on these datasets to establish procedures and minimum requirements before accepting and using such datasets in measurement as well as ongoing related quality control.

The most direct utility of sales and CRM datasets for attribution products is the ability to resolve these datasets at the individual level and relate them to corresponding exposure datasets. The utility of sales and CRM datasets for Marketing/Media Mix Modeling (MMM) products is to be able to trend them for a brand, category or product over time in order to associate changes or incrementality with media spend (accounting for external and environmental factors). As a result, the granularity and specificity of these datasets is of utmost importance. While individual resolution and matching of data sets as part of attribution and MMM products is covered in greater detail further in this Standard, the level of granularity at which data is collected and the method to convert the collected granularity by the measurer to a finer level for purposes of matching, individual resolution or incrementality analysis must be disclosed and supported for accuracy. Such disclosures are the initial responsibility of the organization that collects and maintains the data if conversion is done prior to being supplied to a measurer, but ultimately also the responsibility of the vendor or service utilizing them for Outcomes measurement products if performed by said vendor or service.

2.1.8 ROI/ROAS (Direct Measure of Sales)

Return on Investment (ROI) and Return on Advertising Spend (ROAS) are Outcome metrics directly tied to business growth; for every dollar spent, this is the expected return in terms of

sales or desired Outcomes. Measurement of ROI and ROAS can be done via MMM, or it can be mathematically derived based on media spend and sales data. While sales data has been addressed above, media spend or cost must also be measured to enable ROI and ROAS.

Measurement of media spend or ad cost can be provided by a client of a measurement service or directly configured as part of user-facing tools. In these instances, ROI and ROAS may be a simple mathematical function and not necessarily a direct correlation between spend and Outcomes. Care must be taken to properly disclose not only the methodology for measuring and reporting ROI and ROAS, but also the inferences associated with them. Purely mathematical ROI and ROAS calculations must be clearly disclosed and differentiated from attribution and MMM products that purport to correlate spend and Outcomes and isolate direct return on advertising investment from external and environmental factors.

Costs or spend may also be measured via client financial systems, syndicated vendor services or other means and it is important that such cost measurement adheres to the data collection and quality control requirements detailed in this Standard to the extent it is to be used in Outcomes measurement. Beyond these requirements, the nature of the cost measurement (general source) should be disclosed, as should the true media cost (basis), whether this represents direct investment in advertising or has been derived on some other basis. In addition, if estimates are used, this must also be disclosed and such estimates must be empirically supported. Finally, the unit of currency of spend and cost must be taken into consideration and costs must be aggregated on a normalized basis, especially for multi-national campaigns that may involve differing currencies and units of measurement.

2.1.8.1 Efficiency Metrics

Certain efficiency metrics can be mathematically derived from cost and/or exposure measures. These metrics include, but are not limited to:

- Cost per Action (CPA) – General costs per some action such as:
 - Cost per Thousand (CPM) – Cost to generate 1,000 exposures, most commonly - Impressions
 - Cost per Click (CPC) – Cost per Click
 - Cost per View (CPV) – Cost per View or Viewable Impression
- Click through Rate (CTR) – The % of Impressions that generated a Click
- View Through Rate (VTR) – The % of Impressions that generated a completed View
- Bounce Rate - % of online visits where a visitor subsequently left the digital property without further action (single page sessions)

These efficiency metrics are derived from components detailed throughout this Standard and each component of calculated efficiency metrics must adhere to the requirements contained in this standard and be fully disclosed along with their source and the calculations underlying them.

2.1.9 Incrementality

Incrementality is the measure of the true value created by any business strategy, determined by isolating and measuring related results, independent of other potential business factors. In other words, incrementality is the potential causal impact of marketing. It can be a simple derived calculation of one of the above component Outcomes metrics such as sales, but is often presented on an attributed basis in the context of an advertising campaign or exposure. Incrementality is also often used in MMM approaches as the change in sales, and Outcomes is generally correlated to advertising/media spend, and non-media factors, or attempted to be isolated from the incremental effect.

A wide variety of measurement techniques seek to estimate or measure incremental impact through different methodologies. Modeling techniques (e.g. MMM) typically leverage estimates of baseline sales as a means of estimating incrementality, while scientific experiments such as Random Control Trials (RCTs, discussed further in this Standard below) seek to measure actual incrementality of Outcomes from randomly distributing portions of a single sample between those who can be exposed vs. those that cannot be exposed.

2.1.10 Sentiment, Lift and Other KPIs (Cognitive or Behavioral): Phase 2

Beyond direct value Outcomes metrics, advertising ecosystem participants and vendor services also measure downstream or bottom of the funnel post-conversion metrics that are both cognitive (consumer mindset) and behavioral (consumer behaviors related to a brand or product). This includes, but is not limited to:

- Affinity – What customers think about a brand or product
- Awareness – The level of knowledge of the existence of a brand or product
- Brand Lift – Changes in Brand Awareness or Affinity
- Brand Perception – General opinion related to a brand
- Consumer Sentiment – How a customer feels about a brand or product
- Customer Lifetime Value (CLV) – An estimation of the future spend or profit for a customer
- Intent – To purchase, seek info, etc. (also may be used as an open funnel and targeting metric)
- Loyalty – The level of repeat or exclusive purchases a customer makes of a brand or product
- Preference – A measure of a customer's likelihood to choose one brand over another

The above measures are generally presented on the basis of incrementality as discussed above in that the change in them is measured on a pre/post or exposed/unexposed basis as well as via treatment groups where advertising is targeted as compared to holdout groups where advertising is avoided. The sample and questionnaires/surveys related to these measures and studies must be fielded in a quality manner consistent with *MRC Minimum Standards*, *Digital Audience* and *Cross-Media Standards* and *Data Integration Guidelines* where applicable, particularly with regard to aspects aimed at identifying and reducing biases.

In addition, the proxy metrics measured are crucial to accurate execution of these studies and should be considered as they correlate to actual sales/actions. As an example, persuasion measures such as Brand Loyalty and Preference as well as Intent to Buy are generally more strongly correlated with sales than consideration of brands or recall and recognition.

While many aspects of this Standard can and should apply to these studies and measures, they often involve more active traditional studies and survey research inclusive of panels as well as behavioral and cognitive research or studies when compared to more passively measured aspects of Outcomes described above. As such, the MRC intends to provide more detailed guidance and requirements related to them as a subsequent phase of this Outcomes project.

2.2 Measurement of Delivery and Exposure

2.2.1 Ad and Media Delivery and Exposure

MRC has produced various Standards and Guidelines related to measurement of ad and content delivery for digital (inclusive of IAB/MRC Impression Guidelines and various derivatives of them for format and environment), television (*MRC Cross-Media Video Standards* and *Multi-Channel Digital Video Capture, Accumulation and Processing Guidelines*), audio (*Digital Audio Standards*) and Out-of-Home (OOH; *Digital Place Based Standards*). Further, the *MRC Minimum Standards* have long been applied to print and other media vehicles that carry advertising. While the various aspects and requirements of these Standards and Guidelines will not be repeated herein, all measurement of ad delivery and exposure included within the Outcomes measures covered by this Standard must adhere to them to the extent they are included/relevant to the Outcomes methodology. Non-compliant aspects of underlying exposure measurement included within Outcomes must be clearly segregated in reporting and disclaimed.

It should be noted that while these Standards encourage Cross-Media coverage for measurement of ad and media exposure, especially when measuring the effects of campaigns or content delivered in more than one medium, they do not require all measures of Outcomes to include Cross-Media measurement. However, to the extent campaign or content being measured is delivered in more than one medium, related measures of Outcomes or effectiveness that do not account for one or more media in which the campaign or content is delivered must disclose this fact to end users of the measurement. Further, the nature of any biases or errors associated with omission of measurement of one or more media should be generally disclosed and quantified when material and determinable. Measurers are encouraged to measure all applicable media associated with the Outcomes of a campaign or content delivery where possible. An Outcomes measurer is responsible for understanding and considering when and where advertising and content is delivered.

2.2.1.1 Viewability

A base of viewable impressions is generally required for attribution of Outcomes to ad exposures. Outcomes measurement vendors and services that rely on external ad exposure data for attribution must obtain and report on viewability where available. Digital Display and Video Viewability Requirements are detailed in the *MRC Viewability and Mobile Viewability Guidelines* and Cross-Media Viewability requirements for other media are detailed in the *MRC Cross-Media Measurement Standards*. Outcomes measures that do not incorporate viewability (including cases in which viewability cannot be measured due to technical limitations such as may occur for CTV) may still be reported *in addition* to fully compliant metrics where measured or available with proper labeling, segregated reporting and clear disclaimer (these would not be considered fully compliant but can be audited and accredited as long as fully compliant corresponding metrics are also reported and audited).

Certain methodologies used to measure Outcomes may obviate the need to incorporate viewability. For example, the MRC Viewability Guidelines allow for “strong user interaction” such as a click or tap as a proxy for viewability prior to viewable conditions being met with empirical support accounting for accidental or incidental interactions or navigational mistakes. Further, first-party collected data via panels or surveys whereby respondents directly affirm exposure to ads can mitigate the need to measure viewability; however these collection methodologies (discussed further in this Standard) must be subject to rigorous quality control and other survey research standards to reduce biases, false positives and other errors.

Finally, test and control, hold-out studies or other experiments that utilize targeting or intent to treat in order to measure effect or incrementality may also not require direct viewability measures. This may be especially true when imposing viewability may introduce bias. For example, if a user in the control group does not have an opportunity to see an ad, there is no viewability filter to apply to Outcomes. Applying any filter to the test group would introduce bias against the incremental impact of the marketing being measured. However, as discussed further in this Standard, the construction of these studies, the variables selected and stratified on, how external factors are accounted for and how exposed and unexposed groups are defined and measured are all critical for making this case. Strong empirical support that is defensible and auditable is required to demonstrate that such methodologies or studies do not require direct viewability measures.

2.2.1.2 Duration

The *MRC Digital Audience* and *Cross-Media Standards* contain definitions and requirements for measuring and reporting of ad duration and Viewable Duration. Ad Exposure within Outcomes services that includes cross-media campaigns and measurement must adhere to these requirements, although the considerations of applicability to certain approaches as discussed in the Viewability section above should also be considered for duration measurement and reporting.

Duration weighing is NOT a measure of ad effectiveness and it is not recommended to be utilized on a standalone basis in this manner. Duration weighting provides a measure of how much time across all delivered viewable impressions was spent. Duration weighting also accounts for differing ad length, makes separate GRPs for creatives of different length more comparable and normalizes exposure across platforms and media. However, the concept of duration weighting as spelled out in the *Digital Audience-Based Measurement Standards* implied a direct linear relationship associated with the time a digital video ad is in view and how well that ad delivers on its goals (whether a viewer is “effectively exposed”), and no such direct linear relationship can be assumed as some research shows that there may be a diminishing returns effect with regard to the value of duration of exposure.

Additionally, the actual segment of an ad viewed may have differential value. For example, segments of an ad with strong, early and frequent branding presence may represent more effective exposure as historical industry research has shown. Further, viewable duration during concurrent usage of other media or repeat (or single) exposure may have differential effectiveness. Finally, exposure to differing media may likewise carry differential effectiveness.

2.2.1.3 IVT

As MRC considers measurement of Outcomes and actions attributed to a user as “audience measurement”, Sophisticated Invalid Traffic (SIVT) filtration is required. Like Viewability, Outcomes measures that do not incorporate SIVT filtration may still be reported *in addition* to fully compliant metrics with proper labeling, segregated reporting and clear disclaimer (these would not be considered fully compliant but can be audited and accredited as long as fully compliant corresponding metrics are also reported and audited where measured and available).

While large scale automated IVT within actively tracked legacy media consumption may not be materially present, self-directed human IVT related to media-affiliated or compromised respondents is a risk that shall be monitored and mitigated with ongoing controls. Further, television delivery devices including servers, STBs, connected TVs and OTT devices may be subject to manipulation via automated or manual control either for the purpose of generating invalid television activity or other invalid digital activity. Finally, raw tuning records collected and provided by third party content providers shall be subject to quality control inclusive of analysis and filtration for invalid activity as in these situations there may be a direct incentive to falsify and inflate traffic.

While it is expected that all Outcomes and Attribution measurement represents activity total net of SIVT, where IVT filtration is not directly used in certain environments, there shall be an active requirement to demonstrate immaterial impact of IVT via auditable evidence, disclose this and consider revising and reissuing impacted data should such incidents be discovered after corresponding data is reported. It should be noted that IVT as discussed above and as required throughout this document, does not include data editing or cleaning to remove incomplete or corrupt data nor adjustment of records (such as cut-off and inactivity rules) that may not represent illegitimate activity.

Further, certain data sets may be used in Outcomes measurement such as confirmed sales or POS datasets that are inherently “IVT-free”. These datasets might be considered as such because they are not subject to automated or manipulated activity at scale or involve other forms of confirmation and control such as credit card authorization, etc. However, certain aspects of these datasets may be invalid (such as stolen or fraudulent accounts) and to the extent these datasets are collected and/or provided by an entity external to an Outcomes measurement service, they may also be subject to manipulation or falsification. As a result, these datasets still must be subject to quality control inclusive of analysis and filtration for invalid activity by measurement services that use and rely on them.

Finally, like Viewability discussed above, **certain methodologies used to measure Outcomes may obviate the need to incorporate IVT filtration. Again, first-party data collected via panels or surveys whereby respondents directly affirm exposure to ads can mitigate the need to measure and filter IVT (see the panel reporting exception discussion in the *MRC IVT Addendum*); however, these collection methodologies (discussed further in this Standard) must be subject to rigorous quality control and other survey research standards to reduce biases, false positives and other errors. Strong empirical support that is defensible and auditable is required to demonstrate that such methodologies or studies do not require direct IVT filtration.**

2.2.2 Audience Qualification

The definition of viewability should not be used to imply presence of a user or that an ad has been viewed/seen. Viewable conditions may occur without the presence of a user in digital (such as in Auto-Play), OTT and linear environments. That said, there are several requirements discussed in the *MRC Cross-Media Video and Digital Audience-Based Measurement Standards* that signal the likelihood that a user is present during associated measured activity including, but not limited to, inactivity rules, session cut off rules, auto-play requirements, continuous play requirements and TV Off controls. All of these considerations are required for inclusion in Audience and Outcomes measurement. Certain measurement controls such as surveys and panels, people meters and other factors such as user initiated sessions and the personal nature of mobile devices may create stronger linkage between ad delivery and presence of a user. Additional controls that provide further assurance of presence of a user are encouraged for audience measurement included within Outcomes where applicable and should be disclosed.

2.2.3 Attention

Beyond measuring media and ad exposure (rendered and viewable), establishing presence of an audience via “eyes/ears on” or attention and engagement are critical factors in determining meaningful exposure of an advertising message by the consumer. These criteria have an unequivocal bearing on the advertising’s actual contact with, or impact on, consumers, the consumer’s consequent actions and ultimate brand Outcomes. As such, Outcomes measurement providers should consider Advertising Exposure or contact by the consumer as well as their Attention or impact for any audience if causality is to be assessed. Direct measurement of Attention is not required for Outcomes measurement in all cases due to

feasibility and privacy considerations, however it's direct significance to causality should be recognized.

The Advertising Research Foundation's (ARF's) Media Model may be used as a reference for measuring Attention. The first 3 levels of the ARF Media Model (Vehicle Distribution, Vehicle Exposure and Advertising Exposure) are covered by certain aspects of this Standard and more broadly as part of various MRC and/or IAB Standards and Guidelines (the 4th level, Advertising Attentiveness, is the subject of this section). Further, the last 2 levels of the model (Advertising Response and Sales Response; levels 7 and 8, respectively) are the very subject of this Standard, and Outcomes providers are encouraged to consider the additional details espoused in the ARF's Media Model in these areas. Finally, levels 5 and 6 of the model (Advertising Communication and Persuasion) are related to Sentiment, Lift and other cognitive, behavioral and perception KPIs discussed above and planned for further standardization as a subsequent planned phase of this Standard.

While some aspects of Advertising Attentiveness are touched on with regard to discussion of Engagement above, Outcomes services that include direct measurement of advertising exposure or contact (Level 3) and/or impact on the consumer should consider this aspect (the 4th level) of the ARF Media Model to the extent feasible. Specifically, the ARF defines Advertising Attentiveness as "the degree to which those exposed to the advertising are focused on it – ranging from a very brief exposure (or "scan") that is likely to leave very little memory trace, to intense focus with cognitive and emotional engagement that can lead to enduring recall and impact attitudes and behavior – both positively and negatively."

The ARF includes guidelines on the predictive and performance measurement of Advertising Attentiveness, but the salient point is that beyond confirming presence of an ad, presence of a user and the opportunity to see the ad, whether or not the ad was actually seen (contact), engaged with (contact with notice), paid attention to (impact) and ultimately retained in memory, is of fundamental importance in measuring the ad-lifecycle and a consumer's actions (at each Level of the Ad's life-cycle) all of which are required to generate a response as part of Outcomes measurement. This consideration may include the degree of attentiveness that may be impacted by simultaneous consumption of other media depending on qualitative media factors like, location, environment and other stimuli.

Consumer attention measures that are not direct measures of physical or confirmed cognitive attention that are instead indirect measures for Attention (such sustained tuning or duration with an ad or commercial, presence of users and other interaction attributes), must be clearly distinguished from direct measures of Attention. Such indirect measures are still considered Audience measures that require viewability and SIVT as discussed above. Any such indirect measures must be appropriately described in disclosures including the nature of measurement.

Finally, as discussed as part of the scoping section above, there are certain cognitive and behavioral aspects of methodology that may be involved in Attention that go beyond passive measurement and involve measurement techniques beyond simple studies/survey and panels –

for example, neuro studies, eye-tracking, cross-site behavioral and benchmarking analyses, etc. Likewise, more complex aspects of these products such as models that seek to disentangle the generally established relative effects of media contact and creative impact on Outcomes represent difficult areas to standardize.

While consumer Attention measures are included in this phase of these Standards, to the extent they are derived from either first- or third-party measurement of consumer's media and ad exposure (with contact, i.e., "Eyes-On" or "Ears-On" as a minimum)/activity, more advanced methodologies and models employed within them are intended to be addressed as part of a later phase of these Standards.

2.3 Attribution

Attribution is the process of assigning credit to the marketing consumers are exposed to during the process of taking some action (converting). Attribution involves associating an outcome such as a lead, sale or visit to media and advertising exposure and is generally done at a household or individual level. While attribution offers an attempt to more directly correlate ad exposure and Outcomes that can be relatively more granular and actionable than Media Mix Modeling, it's often difficult for these "bottom up" approaches to account for other and external factors in driving Outcomes as well as to appropriately account for all media.

2.3.1 Single-Touch

Some attribution methodologies may either solely credit or assign the greatest weight of credit to a single touch point, such as first or last touch attribution. Single-touch attribution has use cases, although they are generally limited to a specific campaign objective or product type. As discussed above, use of such an approach, like all Outcomes approaches, must be suited to and aligned with the campaign objective and be clearly supported to be used based on precedence and with disclosure.

For example, an advertiser seeking to generate requests for information or a Direct to Consumer (DTC) online marketer that presents an advertisement in an online marketplace that is followed by a direct Clickthrough Conversion may be suitable use cases for attributing an Outcome to a single interaction (in these examples, first and last, respectively). However, even in these examples, it is entirely possible that other factors and exposures contributed to the eventual Outcome. Single-touch approaches must be presented in this context and steps must be taken to account for other factors or at minimum, services utilizing this approach must disclose and quantify the potential impact they may have. That is to say, end-users of single-touch approaches must be provided full disclosure of the assumptions, biases and limitations of such approaches along with appropriate guidance for use corresponding to the advertising use case and campaign goal.

2.3.2 Multi-Touch

Contrasting with single-touch approaches, multi-touch approaches or Multi-Touch Attribution (MTA) seek to assign credit to multiple exposures across media as well as other factors when

attributing actions or Outcomes. Along with ensuring the MTA approach is aligned with campaign goals and transparent to end-users as is required of all attribution approaches, the process and support for determining which exposures are attributed and the weights or values assigned to them must be robust and demonstrable for audit purposes of MTA methodologies. Further general requirements related to all attribution approaches, but particularly applicable to MTA, are discussed at further length at the conclusion of this section. Note that “single source” measurement is considered here as a type of MTA.

2.3.3 Panel and Survey Based Attribution

Panels and surveys may be used to validate RCT experiments, but they may also be used more directly in attribution products to measure both exposure and Outcomes as well as other consumer behaviors and sentiments. In either case, panels and surveys must adhere to *MRC Minimum Standards*, however when used directly to measure any aspect of Outcomes they must also adhere to aspects of sample quality control included in various MRC Standards and Guidelines including survey and measurement design, coverage, sample size, bias, representation and response considerations. Non-probability panels and surveys such as opt-in or online methods must also be designed considering these requirements including use of calibration or enumeration assets to ensure results are projectable and representative.

2.3.4 Specific Attribution Requirements

2.3.4.1 General

In order to accurately match media and ad exposure data to Outcomes or data that leads to Outcomes via attribution approaches, standardized ad identifiers are encouraged. Regardless, evidence and support for methods to ensure measured exposure appropriately relates to Outcomes activity must be maintained with related methods disclosed.

Attribution methodologies should be collectively reviewed, periodically and at least annually. Further, attribution approaches should be subject to standardized data precision, resolution, matching and persistence rules across data sets. Measurement providers should actively track and disclose scale and coverage across relevant cohorts, device types and segments of the population. Material limitations and coverage gaps should be disclosed and impact on results should be quantified with active procedures to continuously address material gaps.

Attribution methods may be validated against RCTs as the appropriate truth standard. The degree of difficulty involved in implementing RCT should not necessarily preclude the validation of attribution methods by RCT.

2.3.4.2 Time Decay Curves and Recency

Time decay curves, lead/lag parameters or recency weighting involve the concept of assigning differentially higher credit in MTA approaches to more recent touchpoints or exposure and as a result less to earlier exposures. While such approaches have a sound basis, as discussed throughout this Standard, not all Outcomes are more directly correlated with or caused by recent exposures. Particularly with regard to high consideration or infrequent purchases, earlier

exposures during the information gathering phase of the consumer lifecycle may be more influential on consumer actions. As such, use of time decay curves, lead/lag parameters or recency approaches must be suited to campaign objectives and goals and based on robust empirical support.

Re-creation and validation of research underlying curves utilized must be done, periodically.

2.3.4.3 Logical Regression and Game Theory

Heuristic or rule-based models including simplistic models such as Single- and Multi-touch attribution, and fractional models such as time decay are discussed above, but more sophisticated evidence-based models or algorithms may be used for attribution including logical regression and game theory, among other approaches. While such data-driven models may in fact be much more robust depending on use and purpose, their design and the selection of underlying data and algorithms used is important.

Rigorous data quality and analysis procedures must be applied to the processes to select training data, select parameters used in the model, prepare data, select the model, train and evaluate the model as well as to periodically tune it.

The ability of models to accurately predict Outcomes is correlated to the size and quality of the data underlying it. Measurement organizations must establish minimum data sample sizes and quality thresholds when selecting training and evaluation data sets. To the extent reduced performance or accuracy is expected in certain data conditions (such as in smaller sample sizes, shorter collection periods, missing or lower quality data, etc.), this must be actively disclosed to measurement reporting end-users via estimates of error using statistical methods or observed error.

Further, the data selected and the parameters or fields used should be relevant to the use of the model (empirical support must exist that establishes a relationship between data or parameters used and Outcomes). When preparing training and evaluation data, which must consist of distinct and mutually exclusive data sets, robust data quality procedures should be applied to clean, normalize and deduplicate data as well as to account for or adjust data imbalances or biases. Biases in training and evaluation data should be reduced to the extent possible and disclosed where material.

Additionally, the model or algorithm selected must be appropriate for the intended use and periodically updated or refreshed. Use of models must be logical and defensible based on empirical support that is documented and made available for audit. Such support must be periodically validated and updated. Training and evaluation of the model will likely result in weighting or bias adjustment as well as parameter tuning, and this must also occur on a periodic basis.

While robust models will help mitigate certain challenges discussed throughout this Standard related to biases and external factors, they should be deployed in conjunction with focused

manual intervention. Weights and bias adjustments of input data or parameters resulting from the periodic training and evaluation of models should be used to focus such manual intervention. In other words, known biases or weaknesses in the model or for specific data conditions should inform procedures that include manual human review.

Model methodology and procedures must be actively disclosed to measurement reporting end-users at a non-technical level, including relevant data set sizes, models used and data sources while ensuring proper safeguards against reverse engineering. The level of reliance on models must be generally disclosed.

“Explainability” of the model supports the quality and auditability of models used in attribution. This can be addressed through explainable AI approaches, such as training secondary models which can learn what specific factors contributed to observed Incrementality, and approaches to understand the impact that various marketing influences or touchpoints may have had on attributed Outcomes. Consideration must be given up front to how measurement services will demonstrate the purpose and quality of the model in an audit setting, as well as how models are evaluated and maintained for quality

2.3.4.4 Determining Weight or Value of Exposure Type

Many attribution approaches seek to assign value to or weight various exposures or touchpoints based on various approaches. As is a theme of this standard, the process to determine and assign these values must fit the use case of the campaign objective, be empirically supported and disclosed.

Beyond these requirements, and even with such support, such values can be biased by data availability. While this standard allows for and applies to attribution measurement in closed-loop systems or media verticals, cross-media considerations are strongly encouraged to be taken into account and are required to at minimum be reflected in processes and disclosures to account for biases. For example, the availability and volume of digital exposure data as compared to other media measurement that may be less available at scale or on a granular ad exposure basis may influence and bias attribution approaches that do not properly account for other-media factors. As such, even if the values chosen to assign to available exposure data are empirically supported, the absence or unavailability of other media data will diminish the efficacy of the attribution approach. Attribution methods involving only digital and not including television (for example) will unavoidably credit digital with incremental Outcomes that may be caused by television; attribution methods involving only one platform or property will unavoidably credit Outcomes that may be caused by other digital and non-digital media on other platforms and properties. These types of studies must disclose such qualifiers to measurement reporting end-users.

The same can be said for non-media and external factors. As MMM approaches attempt to account for other factors such as price, promotion, influencers, PR, brand mention in the news, owned media, earned media, experiential event sponsorships, competition, in-store marketing, weather, economy, external influences and other marketing factors, other attribution

approaches might ignore these factors. As a result, the values and weights assigned to exposures may be appropriate and supported relative to each other, but not in the greater context of all factors that may influence a consumer action.

As a result, attempts must be made to study and account for less available data and external or non-media factors if omitted or not considered as well as to disclose and quantify their potential impacts in reported results. Finally, use of general or random statistical approaches to assigning weights in lieu of more robust correlation or evidence-based approaches must be explained and supported.

2.3.4.5 Attribution or Lookback Window

The attribution or lookback window is the time over which exposure will be considered for attribution. Again, such windows must be empirically supported, but they must also be logical with regard to campaign objectives and length as well as category sales cycles. The attribution or lookback window may be set by a client user based on certain assumptions of media performance, but must be supported and consistent across similar objectives. These windows must be disclosed up front, in advance of campaign execution and measurement and as part of disclosures corresponding to reported results.

Measurement providers must establish empirically supported limits to the length of a lookback period, which may be different for different campaign goals and approaches, with defensible audit evidence maintained supporting them.

These defined measurement periods must not be conflated with baseline periods sometimes called by similar names.

Marketers will sometimes need to make decisions based upon a shorter time period of measured sales. In these cases it is common for the measurement provider to forecast the full 12 month effect of the campaign. The basis for such forecasts must be disclosed and the methodology for extending shorter period results to 12 months or longer periods should be re-evaluated periodically based on empirical evidence.

2.4 Estimating Sales Effect: Test and Control

Attribution or validation of attribution may include approaches that compare test and control groups to estimate incremental effects. These approaches include randomized control experiments (or Randomized Control Trials; RCT) and non-experimental (or observational) methods. RCTs and non-experimental methods differ in how test and control groups are created.

An experiment (RCT) uses randomization to produce test and control groups. In this approach, whoever is running the RCT has the ability to explicitly control who does or does not get treatment and makes this decision truly at random. Any approach that does not control the

treatment of individuals and/or does not do this at random is not an experiment and would be considered an observational approach.

Non-experimental methods are used when the person running the study doesn't control treatment: users' behavior is observed without intervention. A common approach is to compare treated individuals with a control group drawn from "similar" untreated individuals. This approach, which may also be called forensic/synthetic control, often uses methods including matching or weighting to construct the control group.

More generally, these approaches such as forensic controls and hold outs, may be difficult for areas where statistically reliable or recent data is not available to perform this effectively. However, they may prove useful in attempting to isolate incremental effects between "exposed" and "unexposed" groups.

General Requirements

The results of RCT exercises and non-experimental methodologies may not be considered estimates. However, as result of deviations from perfect execution are almost unavoidable, they must still be treated as estimates. As such, the results must adhere to statistical and sample-based requirements of the *MRC Minimum Standards* including:

- Disclosure of any biases as well as quality controls to address and reduce inherent biases
- Disclosures of sample bases including relative sample sizes
- Disclosure and quantification of sampling and non-sampling error
- Disclosure of standard error as well as guidance for use of error estimates such as confidence intervals
- Disclosure of assumptions including prior knowledge and hypothesis design

Further, the selection of variables including controls as well as the stratification of these variables must be supported and based on evidence of meaningfulness fit for the RCT use case. In an RCT, randomization must be appropriately used in order to estimate and disclose post-randomization biases. For non-experimental approaches, controlling for potential confounding, showing what steps were taken to make groups comparable and exploring any potential remaining bias must be documented and supported. Analysis of biases and objective processes to take corrective action during the analytical process must be established.

RCT approaches and non-experimental methods are encouraged to be subject to peer review such as by industry or other research organizations and documentation of this peer review process as well as results where applicable must be retained as well as disclosed at some level to measurement reporting end-users.

Care must be taken to ensure the control groups are comprehensive and that any limitations in coverage of the population being measured are accounted for, such as through weighting. Further, control groups must be of the same granularity and stratified using the same variables

and parameters as the test group (of course with the exception of the test group consisting of “exposed” units and the control group consisting of “unexposed” units). Specifically, the test and control groups selected randomly must be highly similar with regard to prior purchase histories, and if the first random samples drawn are not highly similar in those key dimensions, additional random samples need to be drawn and discarded until there is alignment in the key predictive indicators before the samples may be considered usable.

Designing RCTs or Non-experimental Approaches

Experiments or non-experimental approaches may be utilized to estimate incrementality or advertising effect. Either method set up in advance must be done using addressable media to ensure advertising control. Individuals to target or treat may be chosen based on whom the brand considers prospects or current customers or whomever the brand is currently targeting, but the criteria for selecting the target group must be objective and disclosed.

In such setups, the number of alternative treatments determines the number of treatment cells. The control cell is typically either a cell that receives zero advertising during the time frame or the test is a heavy-up test where alternative treatments (or a single treatment) of heavy-up media are being considered, or both are used (and the null advertising cell is being specifically de-targeted using addressable media). Where the natural control cell is background media that are already running and cannot be stopped or de-targeted, non-addressable media typically constitute that cell. As described above, for any method, whether RCT or non-experimental, test and control cells should be comparable on average across all features other than the treatment being studied.

It is critically important that the variables selected are collected in compliance with the data collection and quality requirements of this Standard. Inaccurate variables will alter and skew experiment results. Likewise, the “exposed” and control groups must be validated to determine true exposure or lack thereof. In other words, previously in this Standard it was stated that direct exposure measurement such as viewability may be obviated as part of RCT experiments in that isolating untreated groups from treated groups and measuring incrementality between the two may strongly imply effect without the need to directly measure exposure. However, there is a risk that differences in experiment groups are either caused by inaccurate or inappropriate variables, unaccounted for exposure, previous behavior and predispositions and other media or external factors. The survey design and variable selection can reduce the impact of these factors, but direct measurement of exposure inclusive of viewability, audience qualification and attention can provide further assurances that exposed groups were presented advertising information. RCT without direct measurement of exposure through these means must provide empirical evidence that exposure occurred and be subject to validation.

Validation

RCTs or non-experimental methods may be used as a form of validation of attribution methodologies that include direct exposure measurement and such use is strongly encouraged by this Standard. However, these approaches used on a standalone basis as a measure of Outcomes and incrementality require validation of their own in terms of the component exposure and outcomes measures (if not directly measured) as well as the design, variables, algorithms and data adjustment or weighting used.

RCTs and non-experimental methods rely on comparing outcomes between equivalent groups. Equivalence of treatment and control groups across all other aspects other than the treatment being analyzed (such as an ad exposure) distinguishes the effects of marketing from baseline conversion behaviors. Given this, at a high level, validation must (1) clearly identify and define treatment, (2) show that there was no contamination between group membership, and (3) provide evidence that treatment and control groups are equivalent and that any sampling biases are accounted for. There are a variety of approaches that can be used for validation depending on the methodology implemented. Validation may include some or all of:

- Documentation of how the method implements randomization and holds out users;
- Comparing averages of demographics and other features to confirm they are the same between test and control;
- Confirming randomization produced the intended split between test and control;
- “Truth sets” such as directly observed first-party data such as surveys and other studies as well as panel measurement (not to be confused with Lift studies that may use these validation assets as a base) and other analytics; and
- Specifically for non-experimental methods:
 - Quantifying sensitivity of results to different design choices (such as included confounders, hyperparameter values, etc.)
 - Placebo analysis

Such validation should be conducted on a periodic and ongoing basis and should involve a subset of the experiment groups, selected and stratified to represent the same variables used to construct the experiment. Documentation of these validation processes and these results must be retained for audit purposes and errors observed as part of the validation process must both be disclosed to measurement reporting end-users and utilized to adjust future experiments.

2.5 Marketing/Media Mix Modeling (MMM)

Mix models involve statistical approaches to estimate the impact of marketing on sales (baseline incrementality) with an objective to assess the effectiveness of marketing as compared to a baseline of sales without marketing efforts. Mix models also consider other factors that attempt to account for seasonality and other non-media activities and are generally based on a robust historical dataset at a media or market level. These “top down” approaches

are often best suited for budget allocation or media spend decisions, although they are increasingly used in conjunction with Attribution approaches to help establish guardrails for results.

2.5.1 Statistical Basis

Various statistical techniques can be used to support MMM approaches and these techniques must be empirically supported for the specific model use, but also disclosed to measurement reporting end-users at a non-technical level while ensuring proper safeguards against reverse engineering. As required by *MRC Minimum Standard A.1*, measurement services must try constantly to reduce the effects of bias, distortion and human error in all phases of its activities and commensurate with *MRC Minimum Standard B.1*, such biases must be disclosed. This is a critical aspect of MMM as varying statistical bases may have disparate error associated with them depending on their use case.

2.5.2 Geography and Coverage

Geographic areas used in MMM models or reporting must be clearly defined in accompanying disclosures and the criteria and/or source used must be disclosed. Sources of geographic or location data must be auditable as well as validated and vetted by the measurement services that rely upon them. To the extent that digital data is utilized to determine location for geographic assignment, the *MRC Location-Based Advertising Measurement Guidelines* should be considered, specifically regarding the location technique and data source and the accuracy for the given geographic use case.

The geographic coverage of the MMM service must be disclosed along with any material limitations in coverage. Geographic granularity must be made consistent or be appropriately considered among disparate datasets used in Outcomes measurement so that unit-level geography corresponds or can be appropriately related to the level of granularity of reported results. Processes to convert less granular geographic data to a finer level of granularity must be empirically supported.

Outcomes measurers are encouraged to consider stratifying disparate datasets (spend, sales and other datasets used as factors in establishing incrementality) used in MMM at a geographic level, in addition to demographic and other media behaviors or individual characteristics.

2.5.3 Granularity

In addition to geography, there may be other units of reporting or analysis featured in MMM services, subject to varying granularity. These include, but are not limited to, media type, channel, creative, campaign, publisher, store, etc. In addition to requiring disclosures of these units, their sources and the associated granularity related to them, these Standards also require that the underlying statistical methods of estimation are considered in conjunction with them. Specifically, minimum reporting standards should be applied to units of reporting and analysis granularity to ensure they are of statistical significance and are reliable. Measurement vendors must establish empirically supported minimum requirements for reporting (for specific

measured properties or metrics) including geographic granularity and are required to disclose the minimum requirements.

2.5.4 Historical Dataset

MMM models and services often use historical datasets that may span several years. The period used for this historical basis must be known to measurement reporting end-users and any insights or estimates produced by them must be presented with this context. Further, short and long term estimates may be differentially influenced by portions of the historical dataset. For example, short term estimates may be more reliably informed by recent data, but long-term estimates must take into account seasonal factors and similar periods historically where applicable. As a result, MMM measurement providers must provide relevant details of subsets of historical datasets used for these estimates and associated error and biases.

2.5.5 Spend Data

Controllable spend and trade data on ad and media buying activities are generally incorporated into MMM services. Sources of spend data must be generally validated and vetted by the measurement services that rely upon them through standardized data acceptance criteria and ongoing logical data checks. While direct client spend data may be considered more reliable than that obtained from external sources, MMM measurement providers must still perform quality control and logic checks on this data. In addition, currency and necessary conversions must be considered to ensure appropriate combinations and calculations. Finally, to the extent that pricing changes and inflation are considered in models, the method of incorporating these aspects must be supported and fully disclosed.

It should be noted that spend in the form of Impressions or Reach/Frequency is likely a more accurate input into MMM in that it represents actual achieved media delivery, whereas pure cost may be more indirect and include discounts and other factors that do not truly represent media allocation.

2.5.6 Other Factors

MMM approaches often include noncontrollable factors in their model design such as weather, economy, external influences and other marketing factors. The source and influence of these factors in the model can vary and it is important they are known to measurement reporting end-users with a quantification of the impact of the influence of material factors. Like spend data, sources of other factor data must be auditable as well as validated and vetted by the measurement services that rely upon them. Further, because the interaction of these factors with spend and incrementality is often indirect and may vary by campaign type or objective, MMM measurement providers must empirically support the use of these factors and the weight they carry in models for relevant use case categories.

Other influential factors must be included where variables are omitted, to account for resulting biases. These may be category specific.

2.5.7 Model Parameters

The baseline is a model inference that represents sales that would have occurred without any marketing efforts and is used to derive incrementality of media effect. This is a core assumption that must be known to measurement reporting end-users of the MMM measurement. Further, the support in deriving baseline must be disclosed and statistically supported through auditable evidence.

Collinearity is the degree of which independent variables are correlated. Collinearity can be positive (direct) or negative (inverse) and multiple variables can be correlated by different degrees (multicollinearity). Many MMM measurement services include methods to estimate or account for collinearity, often using statistical approaches. Collinearity should also consider and account for the interaction between media as well as the halo effect of advertising across brands. These factors may be accounted for within model parameters, by adjusting input data or through other methods.

As discussed above, these techniques must be empirically supported for the specific model use, but also disclosed to measurement reporting end-users. As required by *MRC Minimum Standard A.1*, measurement services must try constantly to reduce the effects of bias, distortion and human error in all phases of its activities and commensurate with *MRC Minimum Standard B.1*, such biases must be disclosed. This is a critical aspect of MMM as varying statistical approaches may have disparate error associated with them depending on their use case.

Finally, model parameters should specify minimum data points across a fixed time period for qualification and these minimums must be supported.

2.5.8 Integrated MMM

While MMM approaches may be used on a standalone basis for Outcomes measurement, MMM approaches may also be used in conjunction with other attribution methods such as MTA/single source. Such integrated or hybrid approaches may either be used to bring added granularity to MMM or to provide guardrails or reasonableness evaluation to attribution approaches. Further, MMM integrated with RCT may likewise be conducted to accomplish these same objectives. While these approaches may be highly viable, they do add certain complexity as the various requirements for the respective approaches discussed above should be considered across the integrated study, inclusive of data granularity, relevancy and campaign windows with consistent data rules applied. The nature of these integrated approaches must be generally disclosed to measurement reporting end-users including the role of each contributing methodology and any limitation of each approach that may impact the overall reliability of the integrated results. These disclosures should be made at a non-technical level while ensuring proper safeguards against reverse engineering.

2.5.9 Bayesian Priors

MMM practitioners often run statistical optimizations which generate multiple solutions that are equal to one another in statistical goodness measures, and the analyst uses subjective judgment to choose which of these solutions to report to the client. The general rule among modelers is to select the one model which is closest to the previous MMM report provided to that client. This is called the use of Bayesian Priors. This methodology must be disclosed in all cases and measurement reporting end-users may differ in their desire for detail, with some wishing to see all of the solutions within an acceptable range of statistical goodness metrics. MMM suppliers should provide this detail upon end user request.

3 General Modeling and Data Adjustment

3.1 General

Models selected for Outcomes measurement must have empirical support that they are fit for their intended purpose. This includes empirical support for the model selection process. This can be achieved, for example, by performing k-fold cross-validation on modelled data and selecting the model that produces results on a repeated basis. Such empirical support must consider business objectives and campaign goals as well as include policies to periodically validate and improve selected models. Whether the models employed are existing solutions for similar use cases or internally developed, documentation must be maintained related to how the models achieve stated objectives and regarding methodological decisions. Further, robust documentation must be maintained related to data and application infrastructure including details on data sources, recency and time to live policies as well as analytical platforms used. Also, measurement organizations utilizing models for Outcomes must subject these models to documented oversight and governance procedures including decision routing, role designation and responsibilities.

Training and test data is critical to model functionality. Measurement organizations must develop and support training and test data source qualification requirements including standards for inclusion and exclusion metrics, data granularity, level of detail and data completeness, variability, and reliability as well as applicable bias tests and analyses.

A process for algorithm training and test design must also be developed and documented including algorithms/techniques considered for evaluation and evaluation standards used to select an algorithm as well as performance analyses related to the efficacy of the algorithms including, but not limited to:

- Classification Accuracy
- Recall
- Precision
- False Positives and Negatives
- F1 scores
- R-Squared and Adjusted R-Squared

- Root Mean Squared, Mean Absolute, Mean Absolute (#, %) and Symmetric Mean Absolute Error
- Akaike and Bayesian Information Criterion
- Heteroscedasticity and Durbin Watson Tests for Autocorrelation
- P-Value with Bonferroni Correction
- Variable Inflation Factors for Multicollinearity

Algorithmic biases including any systematic exclusion or differential performance of any relevant cohort, group, demographic (especially as it relates to Racial and Ethnic groups) must be considered, disclosed and an attempt must be made to address. In this sense, algorithmic bias means any structured missingness in training or ground truth data underlying an algorithm or tendency of the algorithm itself to introduce differential bias such as under- or over-statement of results for a particular group, data type or cohort.

Finally, measurement organizations must provide disclosures to measurement reporting end-users that describe any sampling procedures as well as tests performed to assess set dimensionality (time, size, etc.), bias controls and representativeness as well as cross-validation and empirical analysis and the cadence for performance actualization.

3.2 Establishing Universe

Generally, a demographic/geographic universe or coverage definition stated on the basis of population size is required for audience measurement, including Outcomes. These may be customized (or limited) based on the specific attributes of the measured audience. The source used for such universe definitions must be referenced and shall be from generally accepted independent Industry, governmental or NGO third-party sources as well as derived by measurement vendors directly as part of high quality observation or surveys. These figures are critical for the projection of audiences and Outcomes. This data shall be updated at regular periodic intervals and preferably be stated on a basis that corresponds to the audience targets and weighting variables being employed by the measurement organization.

Adjustments to universe estimates such as surveys conducted to update them or obtain more granular estimates than available from generally accepted sources shall be disclosed, supported by empirical evidence that the collection methodology and collected data is representative of the universe being measured, and subject to robust quality control.

Universes used for Outcomes measurement and projection shall utilize units appropriate to the underlying metrics, including whether those are on the basis of persons or households. Methods to convert or translate persons or household level Universe Estimates shall be empirically supported.

See the *MRC Digital Audience-Based Measurement Standards* and *MRC Cross-Media Audience Measurement Standards (Phase I Video)* for further guidance regarding Universe definitions.

3.3 Coverage

Outcomes may be measured through taking samples of persons and/or devices and projecting the activities of these samples to the population of users and/or devices. This is traditionally known as panel-based or sample-based measurement. For sample-based measurement of any kind, the measurement organization shall be diligent about ensuring valid projections are made and that the sample is representative of the population targeted for measurement for probabilistic samples or that non-probabilistic samples properly account (via weighting or data adjustment) for inherent biases and are subject to robust quality control. Methods for weighting or adjusting data to ensure projectability shall be supported by empirical study, and these empirical studies shall be updated periodically. Standard errors around sample-based projections shall be disclosed along with the impact of known non-systematic error and bias.

Measurement can also be done through census-like counting techniques, essentially tracking instances of consumption through tracking assets for all measurable accesses or by using comprehensive, large-scale data sets. Despite the inference of “census” there are likely to be certain limitations of coverage (harder to reach or measure demographic cohorts, incompatible types of players or browsers, excluded technology types, functionality limitations in certain mobile devices, lack of digital or cable access, less available or robust measurement of media such as offline or non-addressable, etc.); therefore, it is important for the measurement reporting end-users to fully understand the true coverage of the reported estimates and what may be excluded from the measurement organization’s ability to measure. The coverage of, and material limits or exclusions to, coverage of audience measurement are required to be described by the reporting entity.

Limitations in measurement of the intended Universe due to technical limitations of measurement or intentional measurement exclusions, including any that result in systematic biases (for example, non- or under-sampled geographic areas, or non-sampled/measured respondent types especially any Race or Ethnicity), shall be fully disclosed and quantified, where known and quantifiable. As part of this requirement, measurement organizations shall also consider environments where measurement is not permitted such as platforms, publishers, hardware or other environments where measurement assets are either actively restricted, due to privacy concerns (discussed at length later in this Standard) or other reasons, or are not accessible by a specific measurement technique. Measurement estimates shall not be projected to adjusted coverage, but instead to the Universe intended for measurement.

Measurement organizations must periodically assess any measurement limitations and resulting biases including whether they can either be mitigated further or corresponding disclosures shall be updated. Campaign windows must also be considered when assessing coverage of Outcomes measurement and the requirements for assessing limitations discussed above. Measurement organizations are encouraged to consider additional industry guidelines in this area. Additionally, measurement organizations seeking MRC accreditation are required to adhere to relevant *MRC Minimum Standards* and the *MRC Digital Audience-Based Measurement Standards* in this area.

4 Measurement – Technical Details

4.1 Tracking of Users (Sources and Attribution)

The threshold of measurement difficulty for achieving user or persons-level measure in a census-based environment is quite high (generally because of the difficulty of being able to identify a cookie, advertising ID or device as a unique person persistently during the measurement period). The measurement organization may utilize algorithms and other data adjustment procedures, utilizing means such as cookies, as well as other possible identification methods such as online or offline studies, to calculate unique browsers or devices. However, in order to report at the user or persons level, the measurement organization must utilize in its identification and attribution processes underlying data that is, at least in a reasonable proportion, attributed directly to a person.

In no instance may a census measurement organization report on a user or persons basis purely through algorithms or modeling that is not at least partially traceable to information obtained directly from people, as opposed to browsers, devices, or any other non-human element. Training sets shall be based on real behavior at the individual persons level as opposed to devices.

The highest form of direct assurance for persons level measurement is on a first-party, opt-in basis where users have provided or confirmed their personal details or demographics, a subset or all of which have been validated through direct interaction or correspondence and their media consumption is verified and attributed via credentials or compliance mechanisms on an ongoing basis. It is understood that such assurance representative of the media universe at scale may be difficult and costly and as a result these Standards, the *MRC Digital Audience Standards* and the *IAB/MRC Audience Reach Guidelines*, provide guidance for various methods of deriving persons level measurement without complete first-party measurement. Short of direct assurance of persons (which is preferred), capabilities and limitations related to methods to derive persons and assumptions applied therein shall be periodically studied and disclosed to measurement reporting end-users.

Wherever possible, direct persons level measurement is preferred for combined and deduplicated measurement. This applies in digital where media consumption is often personal on individual devices, but even in linear media where consumption is increasingly individualized. Further, adjustment of audience to project raw media exposure to account for persons such as in co-viewing extensions, must be based on rigorous, empirically supported and auditable methods with some meaningful component based on directly collected deterministic persons measurement.

Additionally, adjustment factors that utilize persons level overlay data to project audience for device level media consumption measurement are less accurate than direct persons level measurement. Such techniques must be clearly disclosed, empirically supported and error associated with them must be provided in a prominent manner.

Panel-based measurement organizations may track panelist audience activity and/or rely on their own attribution techniques (logging, database matching, activity analysis such as people metering compliance and qualification, etc.) to determine the identity of a specific panelist. These records will be accumulated for websites, channels, stations, ad exposures or properties and projected/weighted to totals. Panel-based measurers have an obligation to study the effectiveness of their attribution techniques periodically.

These organizations may have complex methodologies for selecting, recruiting, coaching and maintaining panels (or other methods of user-attribution); collecting data; editing, projecting and weighting data and reporting audience activity. A strength of these organizations is the ability to attribute audience activity to persons directly and the known demography of users in a panel or some other user-attributed data source. This information is gathered through a combination of manual and automated techniques, some of which can involve direct contact with panelists and some involve use of software metering techniques or other data collection devices.

Similar to census-based measurers, the quality of the user attribution process (logging, activity assessment, etc.) is critical to the measurement accuracy. Additionally, the *MRC Digital Audience-Based Measurement Standards* contain guidance related to technical details for panel-based measurement and Attribution measurement providers are expected to comply with that Standard.

Tracking of users has broad and significant privacy implications that must be considered. See further discussion of privacy considerations later in these Standards.

4.1.1 Adjustment of Unique Users

The *MRC Digital Audience-Based Measurement Standards* contain guidance related to technical details for adjustment of uniques and Attribution measurement providers are expected to comply with that Standard. **See the following section for more detailed requirements related to identifying users across devices specific to Outcomes measurement.**

4.1.2 Identifying Users Across Devices

The following general concepts are critical to valid, effective and reliable deduplication efforts for audience inclusive of Outcomes measurement:

- Deduplication efforts shall be considered for advertising as well as content-measurement products. Co-usage of media and device/account sharing must be considered with specific focus on tracking and projecting these situations within Outcomes processes.
- The measurement organization shall develop appropriate empirical support and base-research for establishing the validity to methods of deduplication chosen. This support shall be updated periodically as audience behavior and data availability may change.

- If deduplication methods are based on subsets of activities (persons with certain devices or attributes), empirical evidence must include propriety of projection methods and applicability to the media types being measured. Deduplication methods cannot be solely based on modeled data, with no support or access to actual consumer duplication information gathered as a “learning set” or “truth set.”
- Deduplication processes and rates are likely to vary by device, media type, etc. These differences shall be considered, and this fact further emphasizes the dynamic nature of the calculation/model, which needs to be updated frequently.
- MRC has produced guidance on “uniques” metrics contained in the *Digital Audience Measurement Standards*; the standards shall be followed when producing the base for deduplication processes – the measurement organization shall apply deduplication processes to valid unique user estimates.

Certain identifiers are considered of insufficient quality, granularity or stability to form the basis of developing audience-based “uniques”, such as IP address. Base data quality shall be assessed for inputs into the development of unduplicated reach metrics.

The MRC encourages industry study of appropriate methods for deduplication of audiences and tracking assets that preserve consumer privacy, while facilitating accurate measurement. A universal identifier for people would be an ideal mechanism, but we realize that this may be a difficult structure to achieve in today’s complex privacy environment, and with the overall sensitivity consumers and regulators may have toward tracking.

Outcomes measurement reliant on resolution of activity to an individual or deduplicated unique level must adhere to the above requirements and also disclose the method applied to this process. Further, to the extent the measurement is reliant on matching disparate datasets, the match rate must be disclosed along with other statistical KPIs related to this process and consider the requirements above related to Coverage. Measurement approaches reliant to any extent on identifiers that may be limited or subject to partial or complete deprecation such as Cookies, IP Addresses, Emails, Mobile AD IDs (MAIDS) or other unique and persistent identifiers must especially address these requirements.

Finally, as discussed in the Privacy section below, future regulatory, browser and identification restrictions are likely to continue to evolve during and after this Outcomes Standard-setting process and it is important for Outcomes measurers to stay abreast of and consider these in their processes. This may lead to less granular analysis and reporting of Outcomes including cohort-based measurement as well as the use of deterministic/probabilistic approaches such as device and ID graphs.

Device or ID graphs may be built and maintained by Outcomes measurers and are assembled by associating session or device parameters. Using available signals, mapping providers need first to be able to consistently identify the same device/user against these signals to develop a confidence threshold. The second step is to make an association with other known devices or users. In addition to device mapping, these measurements can also be used for targeting,

segmentation, and/or online-to-offline tracking as well as matching for Outcomes measurement.

Device and ID graphs rely on two distinct approaches: deterministic and probabilistic methods:

Deterministic Approaches – The deterministic method relies on personally identifiable information (PII) to make matches when a person uses the same persistent identifier— such as email addresses, a phone number, or credit card information, etc.—when logging into an app or website. When a user logs in at any point across multiple devices, deterministic data providers can associate those device IDs in a device or ID graph and use that information to identify or target the same user across multiple screens.

This approach generally cannot determine when other individuals—friends, family, etc.—are using a primary user’s device, and as such measurement vendors using deterministic approaches to identify users across devices should account for such situations. This approach is also heavily challenged by privacy restrictions.

Probabilistic Approaches – By drawing on aggregation techniques, probabilistic approaches may incorporate thousands of anonymous data points—things like device type, operating system, location data associated with bid requests, time of day, and a host of others—to identify statistically significant correlations between devices. Signals may also be drawn from known multi-user identifiers like IP addresses, or from geographic regions. By using IP to Geo technology—which can establish a ZIP code or other geographical coordinates from an IP address—the incorporation of additional aggregate signals is possible.

Based on these signals, probabilistic techniques attempt to determine the devices that are likely being used by the same person. Once this determination is made, that provider would likely assign a particular statistical ID to the device. For example, if a smart phone, desktop computer and a laptop connect to the same networks or Wi-Fi hotspots at the same time and in the same places every weekday, one may develop a degree of confidence that all three devices belong to a specific person (although within households this may represent different people living in the same place).

Probabilistic approaches are generally considered to be less accurate than deterministic approaches when associating device pairings, as they are largely based on inferred and/or modeled data. However, these solutions may have greater flexibility to scale across devices, meaning that device mappings can potentially incorporate more overall consumer devices than deterministic partners. They also may be able to be done in more privacy-safe ways, especially if ID and matching is not persistent and done on a cohort level as opposed to an individual level.

Approaches to ID and data matching for Outcomes measurement may make use of probabilistic and/or deterministic approaches. To the extent that these processes are reliant on probabilistic approaches involving persistent or specific identifiers, Outcomes measurers must consider and adhere to the requirements within this standard related to Coverage, Privacy and related

disclosures. Likewise, the use of deterministic approaches for Outcomes measurement will require disclosure and support of the approach to estimate probabilities as well as the errors, biases and limitations associated with it.

Further, to the extent ID or matching is done on a level less granular than individual such as cohort, the reporting of the results of these processes should not claim a level of granularity more precise than the base data and processes. In other words, this Standard does not require individual-level granularity in Outcomes measurement, but expressly precludes measurement at a broader level to be held out as representing individual precision.

Finally, both probabilistic and deterministic approaches as well as combination approaches should adhere to relevant requirements in both the *MRC's Digital Audience-Based Measurement Standards* and *Cross-Media Measurement Standards*.

Identifying users across devices has broad and significant privacy implications that must be considered. See further discussion of privacy considerations later in these Standards.

4.1.3 Data Enrichment Source Selection

A critical component of Outcomes and Attribution measurement is the assignment of audience characteristics to ad or content exposure information. Generally this is accomplished through a data enrichment process, modeling or assigning transaction information to identity information from an independent data source (enrichment provider). There are several critical processes and control areas necessary to select and maintain a data enrichment source:

- Data Source identification and changes to source (with timely disclosure)
- Completeness and coverage of the data source, by data variable
- Accuracy information based on periodically updated empirical support
- Testing and quality control of data transfer from DEP source
- Privacy considerations
- Assessments of adjustments, if any, that need to be made to the integrated source data
- Processes for on-boarding and terminating data sources, as well as disclosing these types of changes to service customers

Measurement services often employ techniques for attributing information to measurement data sets from third-party sources (such as in data fusion) or integrating data from one data set with another unrelated data set to expand the amount of information associated with measurement records – therefore possibly improving the usefulness of data to customers. The resulting expanded data attributes may represent targeting attributes or other market/persons breaks that can be used to segment measured activity based on prescribed advertising criteria.

There are many legitimate methods for these types of assignment or integration procedures – however all implementations are “custom” in nature in that they should reflect the specifics of the data involved and the specific objectives of the measurement service. All of these

procedures rely on significant research and methodological judgment and accordingly require extensive periodic empirical support for judgments made as well as accurate data processing and quality control procedures. Data fields or variables used as links in the assignment / integration process should have demonstrable power (i.e., a statistically demonstrated ability of the field or variable to explain differences in media consumption behavior), which is sufficient for the process. Empirical analyses should support integration priorities including weights or distance decisions; this is also applicable to variable or on-the-fly methods.

Disclosures related to data enrichment process:

The sources of assignment data as well as data sets involved in data integration processes shall be disclosed to measurement service customers in the description of methodology with consideration of protection of proprietary third party provider methodological details. Changes to these assignment/integration sources shall be reflected in customer disclosures on a timely basis. Relevant information to include in methodological disclosures of this type include the following:

- Data Source Organizations
- Frequency of Execution of the Assignment or Integration Processes
- General Description of the Assignment or Integration Methodology
 - A Description of Empirical Support for Methods Chosen; Frequency of Validation Procedures Employed with Latest Validation Results Summarized
- Ultimately Reported Data Elements, by Source Data Set
 - Descriptions of Methods of Collection of Significant Data Fields (e.g., registration or directly gathered, collected from other third-parties)
- Approximate Age of Data Being Used
- Key Linking Data Elements or Integration Dependencies
 - Common Definitions of Linking Data Elements – Definitions shall be Sufficiently Comparable and Preferably Identical
 - Extent of Ascription Applied to Data Elements, Pre-Assignment or Integration where known
 - Extent of Modeling or Other Inferences Made to Data Fields
 - Weighting and Balancing That are Applied
- Known Population Exclusions from Data Sets Used
 - Magnitude of Exclusions, Where Known
- Key Assignment or Integration Performance Indicators
- Size of Applicable Data Sets in Terms of Relevant Attribute (Households, Persons, Media Devices, Activity Records, etc.) where permissible
- Nature of Data Overlaps or Commonalities Between Relevant Data Sets where permissible
- Extent of External Auditing or Verification Processes Employed

There are specific areas of the *MRC Digital Audience Measurement Standards* that shall be considered when developing deduplicated reach metrics. Specifically, the following areas shall be considered:

- Data enrichment methods (section 4.3.5.1)
- Data enrichment quality checking and monitoring (section 4.3.5.2)
- Further considerations on the use of registration data as a source (section 4.3.6)

4.1.3.1 Data Enrichment Quality Checking and Monitoring

Quality control extends to understanding the data sources, custody and general processing details (for example, pre-transfer data changes or editing applied, definition of fields transferred, age of the data) of any large transactional data sets integrated into measurement. It is critical that when data or processing procedures change within upstream data sources, the measurer identifies these changes and adjusts its down-stream processing on a timely basis. This knowledge can be obtained (and updated over time) through periodic direct contact with the data source(s), integrated systems testing/monitoring, or separately maintained lab testing using the source equipment, or, preferably, a combination of these methods. In these areas, procedural consistency over time is critical and considered an aspect of quality control.

A higher level of oversight may be required for data sets not accredited by MRC when compared to data sets accredited by MRC. Given MRC accredited data sets would have already undergone audits to confirm data collection and processing quality controls are in place and data is delivered, aggregators and MRC itself will have a level of comfort regarding the further use of those data sets.

4.1.4 Registration

The *MRC Digital Audience-Based Measurement Standards* contain guidance related to technical details for use of registration data and Outcomes measurement providers are expected to comply with that Standard where applicable.

5 Data Preparation and Quality Checking

This section heavily references the *MRC Multi-Channel Digital Video Data Capture, Accumulation and Processing Guidelines*, the *MRC Digital Audience-Based Measurement Standards* and the *MRC Guidelines Concerning Data Integration* and Outcomes and Attribution measurement providers are expected to comply with guidance contained in these documents where applicable, specifically considering the following areas:

Data Sources and Attributes

- Data Source Selection and Qualification
- Understanding Data Fields, Definitions
- Data Quality Assessments – Source and Field Levels
 - Age of Information
 - Accuracy Expectations

- Frequency of Updating
- Frequency of Change
- Determination of Data Relevant for Linkages and/or Reporting
 - Empirical Support
 - Validation

Ingestion and Maintenance of Relevant Data

- Gathering of Trending and Monitoring Statistics by Source
- Completeness and Accuracy of Changes Applied by Source
 - Scheduled Frequency, etc.
- Maintenance of Data Quality Conclusions

Data Resolution, Assignment/Linkage and Appending Processes

- Establishing and Adjusting Resolution and Linkage Processes
 - Empirical Support for Processes and Algorithms
 - Statistical Assessment of Probabilistic Structures and Associations
 - Outcome Testing
 - Data Mapping, Transfer Coding
 - Match, Merge, Entity Resolution
 - Reference Data Sources and Accuracy
 - Priority of Data Sources
 - Validation
- Application of Procedures
 - Internal Quality Controls

Linkage and Underlying Data Adjustment and Correction Processes

- Sources of Actionable Information
- Ongoing Maintenance Procedures
 - Current, Historical
- Internal Quality Controls

Data Accumulation and Reporting

- Variable Selection and Reporting Granularity
 - Consistency with Privacy Guidelines
- Presence of Methods Disclosures and Boilerplate
- Pre-Issuance Inspection
 - Data Trending
- Customer Feedback, Considerations, Adjustments

Disclosure Requirements

- General
- Accompanying Reported Data
- Error Correction and Reporting

Information Technology Controls

- Data Access Controls
- Systems Development Life-Cycle
- Business Continuity

5.1 Data Rules

Data adjustment and data rules are a highly critical aspect of a measurement service. Often the underlying measurement transactional data or other data sources for assignment or integration can have underlying problems/situations where individual data elements are suspect, incomplete, corrupt, missing or otherwise outside the boundaries of quality expectations. In these cases, data editing processes and data rules are generally used to eliminate, clean or possibly modify these problematic conditions within the data records. Data editing and data rules themselves are considered quality control.

Additionally, data rules include routine processing rules that are applied to raw collected data in the process of converting that data to useable records for measurement reporting. For example, closing gaps in collected data, bridging between data records or crediting broader levels of estimates from more discrete data.

The measurement organization shall monitor the extent of data rules applied within reported results. Significant types of data rules shall be disclosed with accompanying volumes in reports to customers or accompanying methodological reference materials.

It may be common to have data rules which arbitrarily exclude outliers, since that is a standard practice in engineering, however it can be a source of bias which can exclude large numbers of real consumers that differ from the mean or general population. Empirical support therefore is needed to justify such broad exclusionary policies.

There are many known cases of more harm than good being done by excluding large amounts of census-type data for lack of a specific demographic identifier or lack of compliance with some other data rule. Where the loss of sample is material from such practices, the measurer must comprehensively study this practice to support these data rules.

5.1.1 Empirical Support

A measurement service shall have appropriate empirical support of data rules and decision processes and this support shall be periodically challenged and updated to reflect changing conditions. The measurement organizations shall have a dedicated data quality function, a key responsibility of which is to determine and monitor the application of data rules within general measurement, data assignment or data integrations processes. Empirical evidence gathered by the measurement service to support data rules as required above shall at minimum establish that the data rules do not lead to systematic over- or under-statements of audience or biases in terms of product categories, brands, channels, programs, or segments.

Data rules must be initially and periodically validated based on some first-party observations either by the measurement organization or partner third-party. Measurement organizations shall perform, document and periodically update empirical analyses to support their data adjustment methodologies and determine whether modifications to data adjustment procedures should be made. Measurement organizations shall give specific consideration regarding the appropriateness of the current variables and whether minimum/maximum cap values shall be established. It is expected that such empirical analyses are performed at least annually or within reasonable proximity of an annual cadence based on production cycles. Such empirical analyses may be supplemented with auditable support that demonstrate that the data editing or collection environment is not expected to have changed since the last analysis.

5.1.2 Documentation and Consistent Application

A measurement organization shall have edits documented including an assessment of their impact so that an independent party can determine the purpose and specific operational parameters of the edit being applied. Data edits shall be consistently applied between measurement periods and significant changes to editing processes shall be disclosed with estimated impacts on reported results.

5.2 Quality Control Over Data Sources

Measurement organizations shall work with vendors and data providers to understand the processes to append data to records, including procedures in situations where the vendor or provider is unable to append specific information to a person, household or record when no direct source information is available. This may be accomplished through routine data qualification, vetting and onboarding processes as well as ongoing quality control and logic checks.

Appropriate transaction records should be maintained for Outcomes measurements. If changes are made to this information through the information processing of the measurement organization, these changes should be documented and care should be exercised to not bias or distort the measurement process.

Measurers should apply robust validation and quality control techniques continuously to collected and reported data including cleaning and editing functionality. Such techniques should be periodically monitored and assessed. Measurers should consider whether other data validation processes should be included as part of routine and ongoing data inspection, validation and editing.

The measurement organizations should maintain processes to identify, assess and potentially act-upon for disclosure purposes, situations where underlying transactional measurement data, or the data used in Outcomes measurement processes, have significant gaps or missing intervals for a reporting period. This includes non-reporting or suspect data transfer conditions, data interruptions, natural disasters that may cause data gaps, system failures or other

conditions that may suppress normal data acquisition levels. These gaps should be assessed for significance using judgment as to the use and significance of the information from the standpoint of measurement service customers (i.e., which data is important for commerce or other forms of decision making).

Data Gaps should be considered in disclosures on the “projection validity” of the research as compared to the population being measured for the reporting period. If a measurement service decides that data gaps are significant enough to curtail measurement reporting for a period or for a geographic area (or if such gaps are assessed and a measurement service decides to report), this decision should be supported by appropriate empirical (preferably statistical) analysis and retained for auditors and later customer review. Specific non-reporting situations should be reported to customers with the underlying empirical support summarized.

MRC audits will generally require certain verification of upstream processes maintained or relied upon by vendors. This does not necessarily mean direct audit of upstream processes or data sources (although MRC audit and accreditation would obviate audit requirements as part of vendor measurer audits), but means that Outcomes measurers are responsible for developing data qualification criteria as well as quality control processes over ingestion and use of third-party datasets that must be exposed to audit as part of the MRC accreditation process.

5.3 Data Aggregation Controls

A measurement service should maintain appropriate data aggregation controls to ensure that material information is not lost in the collection process and that no changes to the collected data are made, unless through organizationally authorized editing or data adjustment procedures. These aggregation controls can be real-time run-stream or batch oriented – but they should be periodically tested and monitored by the measurement services. Underlying data aggregation controls and completeness checking statistics should be retained for auditor review for a period of at least 12 months.

5.3.1 Quality Control Integrity Checks

Individual data collection functions should include data completeness checks that are appropriately structured to minimize data loss, and flag situations where data gaps exist. These controls should be periodically tested and monitored by the measurement service.

The measurement service should apply appropriate, preferably statistically based, testing to missing data conditions or data gaps to determine the impact of these situations on reported measurement results.

Missing data or data gaps can be caused by systematic problems (generally recurring issues within the data that persist over time or between similar data records) or they can be one-time data outages or natural disasters. Measurement service processes may vary based on the type of issue encountered.

By their nature, systematic data issues are recurring and they are generally caused by specific conditions within data capture mechanisms or the technical environment at the time of data collection/creation. In general, these are error conditions or failures and most are attributable to mistakes within the software or technical structure of data capture. Systematic data issues should be assessed for materiality based on the nature and extent of their occurrences and the impact of each occurrence.

6 Audience Estimates for Outcomes

6.1 Weighting, data adjustment and modeling procedures

Measurement organizations shall give consideration to the level of granularity applied for weighting and data adjustment processes, dependent on how those adjustments impact reported metrics. Data adjustment and weighting processes shall be appropriately disclosed to users of the data.

Measurement organizations shall enumerate known types of missing data and any limitations shall be carefully studied. Efforts must be taken for any biases that missing data or coverage gaps may introduce. Measurement organizations shall quantify the effects of known limitations and disclose the potential impact to measurement reporting end-users

Weighting, data adjustment and modeling procedures must be initially and periodically empirically supported and disclosed to users of data with quantification of impact. It is expected that such empirical analyses are performed at least annually or within reasonable proximity of an annual cadence based on production cycles. Such empirical analyses may be supplemented with auditable support that demonstrate that the data editing or collection environment is not expected to have changed since the last analysis.

Measurement providers must provide full disclosures to end users of Outcomes data including data adjustment, ascription and editing as well as weighting, base calculations and the full spectrum of underlying research. It's particularly important to describe methods, gaps or known limitations applicable in each measurement aspect with underlying assumptions clearly stated.

7 Enhancing Measurement Accuracy

7.1 General

Guidance and requirements of other MRC, IAB/MRC, and, where applicable, IAB/MMA/MRC measurement guidelines are applicable where relevant. These include (but are not limited to) the following impression counting guidance areas:

- Segregation of Pre-fetch / Pre-render Activity
- Auto-Refresh Ads
- Auto-play Ads and Video, Other Non-User Intended Content

- Forced Duration
- Applications On-line vs. Off-line Activity and Other Mobile Application Guidance
- Inactivity Considerations and Limits

7.2 Privacy

MRC's position is that privacy regulations are not a barrier to be engineered around, but hard and fast requirements that must be adhered to and that must be considered when designing Outcomes measurement methodologies. These Standards are not intended to, and do not provide measurers with reasons or permission to deviate from privacy requirements. While MRC's measurement requirements and related auditing is not intended to directly assess privacy compliance, along with the general principles discussed in this document, data collection, processing and transmission processes are encouraged to adhere to applicable privacy regulations and requirements. Outcomes measurers should consider whether proper permissions and access rights are present including whether they clearly state in their privacy policies why they are collecting information and how it may be used and shared.

MRC acknowledges that such privacy requirements may prevent inclusion or otherwise require anonymization of some data fields, particularly those related to user identifying or targeting data.

Measurement organizations are encouraged to consider and comply with additional industry and regulatory guidelines and requirements in this area where applicable. Localized privacy regulations must also be considered. Privacy regulations as they emerge should be monitored and evaluated by the measurement organization as soon as known to the extent they impact Outcomes measurement.

Additionally, measurement organizations seeking MRC accreditation are required to adhere to relevant MRC Minimum Standards in this area. Future browser and identification restrictions are likely to continue to evolve during and after the Outcomes Standard-setting process and it MRC will make efforts to stay abreast of and consider these throughout, as well as to update these Standards as warranted.

Required Privacy Considerations and Disclosures

While restrictions and data limitations in Outcomes measurement may not be able to be directly addressed without running afoul of permissions, that does not mean they should not be considered for disclosure to users of Outcomes measurement and that attempts to further research their impact on reported results and address them indirectly should not be made.

Specifically, to the extent that there is "structured missingness" or biases related to privacy restrictions for specific device or browser types, audience segments, media properties or any other meaningful aspect of the population to be measured, these must be disclosed and quantified (where possible) in conjunction with *MRC Minimum Standards*. To that end,

Outcomes measurers must consider privacy restrictions and permissions in their methodology and be prepared to demonstrate via audit how these are managed to the extent they impact reported results.

As discussed above, to the extent Outcomes measurement is reliant on matching disparate datasets, the match rate must be disclosed along with other statistical KPIs related to this process and consider the requirements above related to Coverage must be considered. This includes data that may be differentially missing or less accurate due to privacy and permissions. In addition to these disclosure and quantification requirements, Outcomes measurement vendors must periodically research the impact of privacy and permissions on their methodology and consider whether these can be addressed or mitigated indirectly through weighting, data adjustment, data enrichment, or other efforts. Of course, such efforts must be well documented and empirically supported as well as generally disclosed considering any error that is introduced as a result of them.

Finally, efforts to enhance privacy in reported Outcomes datasets must be generally disclosed and the impact on reported results must be quantified. Specifically, restrictions to report requests or data granularity related to differential privacy should be disclosed to measurement reporting end-users upfront along with general guidance related to these parameters. Such parameters should be supported and periodically revisited. To the extent “noise” or synthetic/artificial records are injected into reported results to enhance privacy, this must also be disclosed. Such noise should be based on statistical techniques that seek to reduce bias and error, and the effects of such noise must be quantified as part of error disclosures related to reported results. Again, such disclosures should be made in conjunction with *MRC Minimum Standards*.

8 Reporting Parameters

8.1 General Parameters

General reporting parameters (dayparts, week parts, time zones, etc.) provide for consistency and comparability. These shall be based on the logical application of information about the usage patterns of the medium. Reporting should be structured in such a manner as to provide consistent coverage periods between datasets containing relevant activities such as exposure and actions.

In order to provide for more standardization in Outcomes measurement reporting, the following general reporting parameters are recommended. Note that these are only several of the possible reporting parameters that may be used. If parameters in addition to these are reported, similar rules shall be defined and applied. Many of these have been specified on a consistent basis with prior MRC/IAB measurement guidelines.

There should be consistent reporting parameter definitions within a given measurement service, but these may necessarily vary across providers and throughout the industry.

8.2 Time

Day/Daypart — Media usage patterns need further analysis to determine the usefulness of establishing effective and logical standardized reporting days and dayparts (such as media day, working hours and non-working hours normalized across time zones). We encourage such analysis to determine the need for standardization of this measurement parameter based on marketplace needs and behaviors.

To the extent that audience measurement is specific to a media vertical (e.g., TV), measurers are encouraged to conform to existing and standardized dayparts (e.g., broadcast day), especially with regard to cross-media comparisons or GRPs. However, it is likely that media-agnostic measurement will need to be further studied to determine traffic and usage patterns. Digital specific dayparts shall be supported by empirical traffic analysis. Custom dayparts shall be fully disclosed.

Time Zone — Full disclosure of the time zone used to produce the measurement report is required. It is preferable, although not a current compliance requirement, for certified measurement organizations to have the ability to produce measurement reports in a consistent time zone so buyers can assess activity across measurement organizations. For US-based reports it is recommended that reports be available on the basis of the Eastern Time; for non US-based reports this is recommended to be GMT.

Week — Monday through Sunday

Week-parts — M-F, M-Sun, Sat, Sun, Sat-Sun

Month — Three reporting methods: (1) TV Broadcast month definition. In this definition, the Month begins on the Monday of the week containing the first full weekend of the month, (2) 4-week periods — (13 per year) consistent with media planning for other media, or (3) a calendar month. For financial reporting purposes, a month is defined as a calendar month.

Campaign Windows — In addition to the general time reporting requirements above, reporting of Outcomes must correspond to related campaign windows. Pre-established cut-off rules for excluding or including Outcomes measurement should be fully disclosed and consider user objectives in addition to set campaign windows.

Reporting Granularity — Measurement organizations must report Outcomes segmented by media type, target groups/segments, frequency levels (bands) and creative executions in addition to topline results where applicable and relevant to use per campaign objectives.

8.3 Location

If information about the geographic location of the users is collected and reported, any limitations to the methods used shall be disclosed. Location measurement and disclosure shall comply with *MRC Location-based Measurement Standards* where applicable when used for

targeting or assignment of specific location such as home and out of home or market. User/device location may represent point in time location or may be used to determine home location and such distinction shall be disclosed to measurement reporting end-users as part of methodological and definitional disclosures.

The location of media usage shall be considered and consistent in cross-media combinations relative to the Universe being measured for both geographic reporting as well as the impact on reported results (for example home-only measurement of media that can be consumed both in home and out of home). Materially complete coverage of possible media usage locations is required for total audience and cross-media measurement. Reported data shall be filtered to exclude activity outside of the geographic area intended for measurement.

8.4 Minimum Reportability Standards

Measurement vendors must establish empirically supported minimum requirements for reporting (for specific measured properties or metrics) and are required to disclose the minimum requirements.

8.5 Traffic Types

As discussed in *MRC's IVT Addendum*, if an organization subject to measurement by a vendor specifically purchases traffic (such as through an intermediary) or makes use of an assigned traffic arrangement, the ultimate source of traffic to the party from which that organization obtains the traffic must be known (on a per-impression basis), at minimum to the intermediary, and subject to similar invalid traffic detection and filtration by either the purchaser or the originator of the traffic. Measurement organizations should coordinate with the seller or provider of the traffic to ensure business and technical resources and processes are in place to allow compliance with these requirements.

Digital media publishers may acquire visitors or traffic through third parties that are not organic to the publisher's property. Inorganic traffic comes in multiple varieties, ranging from benign types like paid search and affiliate traffic to direct manipulation of traffic counts through means that are unknown to the user through redirects (clear IVT) and resold. The type of traffic may have a bearing on its likelihood of validity and warrant differential IVT consideration. Traffic varieties also shall be considered in the context of how they impact the typical audience profile of the property, as this may differ from a buyer's goals or parameters.

Inorganic traffic, for purposes of this document, is any traffic that originated from any means other than a direct URL entry/site search or app download and initiation (organic traffic). Inorganic traffic can further be classified into Affiliate, Referral, Search and Purchased. Affiliate traffic is defined as traffic directed to properties from commonly owned and associated properties. Referral traffic results from a direct advertising or email campaign where interaction (such as a click) drives traffic to a property. Search traffic represents traffic originating via search engine results other than direct ad campaign interactions (such as keyword and search engine optimization). Purchased traffic represents traffic redirected from

properties other than those owned by the entity acquiring the traffic or otherwise incentivized activity (users compensated for visiting) with the express intent to increase traffic quantity.

Traffic types and corresponding requirements for both buy and sell-side reporting (at the impression level or on a percentage basis) can be summarized as follows:

Traffic Type	Organic Traffic	Inorganic Traffic			
		Affiliate	Referral	Search	Purchased
Definition	Direct URL entry/site search, app download	Traffic directed to properties from commonly owned	Direct advertising or email campaign*	Traffic originating via search engine results other than ad campaign	Traffic redirected from properties other than owned with the express intent to increase traffic quantity.
Reporting Segmentation Required?	No for IVT Yes for Audience and Outcomes	No for IVT Yes for Audience and Outcomes	No for IVT Yes for Audience and Outcomes	No for IVT Yes for Audience and Outcomes	Yes for IVT Yes for Audience and Outcomes
Additional Filtration Required?	No	No	No	No	Additional filtration should be considered where unknown to buyers/not declared and must be filtered when obfuscated or exhibiting robotic characteristics.

* For purposes of traffic type determinations, advertising generally for platforms, publishers or properties can be considered Referral traffic and not Purchased. However, advertising inventory that is part of audience extension arrangements, appears to be native content and not general and clear publisher advertising or incentivized or directed traffic shall be considered Purchased and not Referral.

As traffic varieties also shall be considered in the context of how they impact the typical audience profile of the property because this may differ from a buyer's goals or parameters, for Audience measurement (covered separately as part of *MRC's Digital Audience-Based Measurement Standards*) and Outcomes measurement, all inorganic traffic categories detailed in this section should be segmented and disclosed and as a result, measurement organizations must develop segmentation and reporting mechanisms to distinguish all categories defined herein in addition to the IVT requirement of purchased traffic disclosures.

Where known, through referrer, known buyer/seller arrangements, or other analytics, measurement organizations must present a segmentation of relevant measured activity differentiated by traffic categories defined above at least at campaign level granularity. As part of this reporting, measurement organizations shall also report unknown traffic origins where a determination cannot be made. Unknown traffic shall not be reported as organic without direct evidence and support. Measurement organizations are responsible for developing effective means to detect the type of traffic and ascertain which category it falls in. Limitations

in this area shall be disclosed and quantified. These categories should still be subject to normal IVT filtration except in certain cases of undeclared purchased traffic as discussed below.

Please note: In order for traffic types to be known to third party measurement organizations, a certain degree of reliance on customer signals is required to identify and properly classify traffic sourcing arrangements. Measurement organizations must make attempts to collect these signals and must utilize them when provided. Limitations or situations where these signals are not available must be fully disclosed. First-party measurers of their own traffic must adhere with these disclosure requirements. Likewise, third-party measurement organizations interacting directly with seller/publisher organizations must make efforts to obtain traffic type information and where provided, disclose it if material. Finally, buy-side measurement without direct seller interaction may require broader industry solutions to obtain and disclose traffic type information. Buy-side measurement organizations are encouraged to make efforts to obtain this information, and also participate in efforts for broader industry technical and transparency solutions. MRC plans to participate in and encourage such industry efforts.

These reporting requirements are applicable to the extent traffic is included within and reported as a part of Outcomes measurement services. If traffic is not directly reported, these categories must be internally considered and differentially treated with regard to their impact on and attribution to Outcomes. Such consideration must be empirically supported and disclosed.

In addition to these reporting requirements, measurement organizations must consider each form of traffic type when considering the validity of associated activity (audience as well as ad serving activity to inorganic traffic). Affiliate, Referral and Search traffic may require less additional consideration than Purchased traffic. Purchased Traffic must be subject to enhanced procedures and scrutiny. Purchased Traffic that is unknown to buyers or not declared should be considered for filtration and Purchased Traffic that is otherwise obfuscated as well as Purchased traffic exhibiting robotic characteristics shall be filtered as invalid.

8.6 Data Retention Requirements

Detailed collected data (pre and post-processing) supporting Outcomes measurement shall generally be retained for a sufficient period – at least eleven months after the release of data. Obfuscated or truncated data may be maintained to satisfy this requirement, should there be applicable Personal Identifying Information (PII) or privacy restrictions/regulations, but shall be available in a transparent manner to accreditation/certification auditors and at a detailed level to allow *reprocessing of reported estimates where necessary* (this means that raw records need not necessarily be retained, but data sufficient to allow reprocessing of reported results in case of error or misstatement should be).

Different metric/transaction types and varying risks associated with transaction types shall be considered. PII legal restrictions may dictate eliminating one or more of collected fields from retained records or altering the content of fields for identity protection purposes. **Further,**

privacy or contractual restrictions on raw data may stipulate shorter retention periods. Such restrictions may still allow for alternative levels of retention that are still sufficient to support reprocessing of data. In these cases, deviations shall be supported by the measurement organization's privacy policy and shall be available for review by auditors.

9 Disclosure Guidance

Outcomes measurement organizations shall disclose their measurement activity recording process to buyers, sellers and other users of the measurement data. An organization's methodology for accumulating measurements shall be described to measurement reporting end-users of the data, including methods for calculating unit audiences and data sources where applicable. Specifically, the nature of counts and/or measurements, methods of sampling used (if applicable), data collection methods employed, data editing procedures or other types of data adjustment or projection, calculation explanations, reporting standards (if applicable), reliability of results (if applicable) and limitations of the data shall be included in the disclosure. See *MRC's Digital Audience-Based Measurement Standards and Cross-Media Measurement Standards* for further disclosure guidance. Outcomes measurement organizations are required to comply with disclosure guidance noted therein.

*Transparency to end-users of measurement is at the heart of several MRC Minimum Standards requirements, and this, along with existing requirements for Audience and Cross-Media, are required by this Standard. This includes, but is not limited to, Descriptions of Methodology, change notification and disclosures, error and reliability reporting, and disclosures of known systematic biases. It is also necessary to incorporate Outcomes-specific advance disclosure requirements related to changes and tests in methodology. While the Standard respects the protection of proprietary intellectual property of practitioners, it requires that sufficient disclosure is provided to measurement reporting end-users to enable them to understand and interpret results. **Of particular importance is variability. Due to the reliance on models and projection for a material amount of techniques used in Outcomes measurement, it is expected that reported results will be subject to meaningful dispersion. Such variability and reliability must be actively disclosed along with the quantification of impact on reported results and adhere to applicable MRC requirements on variability. The methods and validation used to dimension variability should also be disclosed to provide a thorough understanding of any limitations that may be present in the approaches taken.***

Users of Outcomes measurement may undertake pilots with Data providers and Outcomes measurement services to validate them before onboarding them. Outcomes measurement organizations that conduct such pilots should ensure consistent and explicit protocols are stipulated in advance of these pilots and should provide documented policies to users regarding pilot set up, communication of results (including on an interim basis), and consistency of KPIs.

10 Auditing Guidelines

10.1 General

Third party independent auditing is encouraged for all Outcomes measurements used in the buying and selling process. This auditing is recommended to include counting methods, measurement methods and processing/controls as follows:

1. Counting Methods: Independent verification of activity for a defined period. Counting method procedures generally include a basic process review and risk analysis to understand the measurement methods, analytical review, transaction authentication, validation procedures and measurement recalculations.
2. Panel/Census/Assignment Methods: Independent verification of activity to assign audience characteristics. These procedures generally include process reviews, methods to ensure accurate representation, qualifiers applied and testing of application of these qualifiers for inclusion in audiences, transaction authentication, validation of weighting and projection procedures and measurement recalculations.
3. Processes/Controls: Examination of the internal controls surrounding all phases of the measurement process. Process auditing includes examination of the adequacy of applied counting and qualification techniques.

Although audit reports can be issued as infrequently as once per year, some audit testing shall extend to more than one period during the year to assure internal controls are maintained. Audit reports shall clearly state the periods covered by the underlying audit testing and the period covered by the resulting certification.

10.2 U.S. Certification Recommendation

All Outcomes measurement products used in the buying and selling process are recommended to be certified as compliant with these Standards, at minimum annually. This recommendation is strongly supported by the 4As, ANA and other members of the buying community, for consideration of measurements as “currency” or as primary evaluators of media spend.

In addition to MRC, there are a number of other certifiers and types and levels of certification available to organizations involved in media measurement.

10.3 International Certification Recommendation

The MRC encourages non-U.S. measurers of activity to adopt the practices spelled out in these Standards. While certification regimes may vary on a country-by-country basis, we encourage measurers to be audited for compliance annually by independent, third party auditing organizations.

11 Glossary of Terms

This section includes terms used throughout this document that are not explicitly defined in other MRC or IAB Standards and Guidelines documents. There are several terms used throughout this document whose definitions can be found in various MRC or IAB Standards and Guidelines documents that are referenced throughout as well as in the References section below.

Attention – The degree to which those exposed to the advertising are focused on it – ranging from a very brief exposure (or “scan”) that is likely to leave very little memory trace, to intense focus with cognitive and emotional engagement that can lead to enduring recall and impact attitudes and behavior – both positively and negatively. (Source: Advertising Research Foundation [ARF] Media Model)

Attribution – In the measurement of media effectiveness, the process by which credit for specific Outcomes is assigned to different marketing elements. (Source: ProjectOAR) For purposes of this document, attribution is further divided into Single-Touch (solely credit or assign the greatest weight of credit to a single touch point, such as first or last touch attribution) and multi-touch attribution (MTA; seek to assign credit to multiple exposures across media as well as other factors when attributing actions or Outcomes).

Bayesian Priors – Statistical optimizations which generate multiple solutions that are equal to one another in statistical goodness measures, whereby analysts use subjective judgment to choose which of these solutions is closest to the previous solution.

Conversion (Online/Offline) – A desired action attributed to the advertisement. (Source: IAB) Generally, a derivative metric generally dependent on one or more Outcomes measures and/or sales/purchases. More specifically, a Conversion is an action that may have been taken as a result of an advertising exposure that aligns with the campaign goal. Crediting a conversion implies attribution in that the Outcomes action is assigned or related to one or more ad exposures. Conversions may occur Online, such as in e-commerce or digital actions, or Offline, such as in a store visitation or purchase.

Incrementality – Generally, the measure of the true value created by any business strategy, determined by isolating and measuring the related results, independent of other potential business factors.

Inorganic Traffic – For purposes of this document, any traffic that originated from any means other than a direct URL entry/site search or app download and initiation (organic traffic).

Market/Media Mix Marketing (MM) – Mix models that involve statistical approaches to estimate the impact of marketing on sales (baseline incrementality) with an objective to assess the effectiveness of marketing as compared to a baseline of sales without marketing efforts. Mix models also consider other factors that attempt to account for seasonality and other non-

media activities and are generally based on a robust historical dataset at a media or market level. These “top down” approaches are often best suited for budget allocation or media spend decisions, although they are increasingly used in conjunction with Attribution approaches to help establish guardrails for results.

Outcomes – Generally consists of measurement of consumer action, sentiment or some other effect of media spend or advertising exposure. Relevant Outcomes can vary based on goals and the approach of media spend or campaigns.

Randomized Control Trials (RCT) – An experiment that uses randomization to produce test and control groups. In this approach, whoever is running the RCT has the ability to explicitly control who does or does not get treatment and makes this decision truly at random.

12 Summary of Key Aspects

The following represents a summary of key aspects of these Standards. They are summarized with appropriate page and section references for ease of understanding and compliance. These aspects may have been paraphrased for presentation below; readers should consult the appropriate page and section referenced for the full details and requirements.

Section	Subject	Detail	Page #
2.1	General	Outcomes analyzed, associated or attributed to media and advertising activities should be relevant, logical and aligned with user goals, while supported by consistent definitions and approaches.	6
2.1.2	Qualified Leads	Qualified leads are highly encouraged to be used in place of unqualified leads for targeting purposes; the basis of qualification must be disclosed, supported and demonstrable.	8
2.1.3.1	Search	Direct product searches are encouraged to be given greater weight or priority than indirect searches by users that eventually purchase. Measurement organizations are encouraged to segregate Paid Search from Organic Search for the reporting of Search metrics.	8
2.1.4	Intent	Intent must be directly observable or inferred based on behavior using empirically supported approaches.	9
2.1.5	Interactions	Interactions with ads and content must be clearly defined and empirically supported. Measurers must consider the positive and negative aspects of social media	10

Section	Subject	Detail	Page #
		interactions and account for their negative impact on Outcomes.	
2.1.5, 2.2.1.1, 2.2.1.3	Viewability/SIVT	A base of viewable impressions is required as an option for attribution of Outcomes; SIVT filtration is also required. • Outcomes measures that do not incorporate viewability and SIVT filtration may still be reported so long as measurement consumers have the option to filter outcomes to only those that are downstream of viewable and fully filtered impressions. • Strong empirical support that is defensible and auditable is required to demonstrate that methodologies or studies do not require direct viewability measures. • Where IVT filtration is not directly used in certain environments, there shall be an active requirement to demonstrate immaterial impact of IVT. • Datasets purported to be “IVT-free” must still be subject to quality control inclusive of analysis for invalid activity by measurement services that use and rely on them. • Strong empirical support is required to demonstrate that methodologies or studies do not require direct IVT filtration.	11, 18, 19
2.5	Clicks	Measurers are encouraged to utilize the Received Click for Outcomes measurement. • Measurers should also report on events beyond this such as Resolved Clicks, Post-Click Activity and Conversions where feasible. • Use of user confirmation techniques (such as Confirmed Clicks) is strongly encouraged for Outcomes measurement.	11
2.1.7.1	CRM/Sales Datasets	The source and nature of datasets must be generally disclosed to users along with details of collection parameters, editing and cleaning applied as well as <i>known</i> biases or limitations associated to it.	14

Section	Subject	Detail	Page #
		• CRM datasets must be vetted prior to use or reliance initially and on a periodic basis. • Measurers ingesting or relying on these datasets must establish procedures and minimum requirements before accepting and using them.	
2.1.8	ROI/ROAS	Care must be taken to properly disclose the methodology for measuring and reporting ROI and ROAS and inferences associated with them. • The nature of the cost measurement should be disclosed, as should the true media cost. • If estimates are used, this must also be disclosed. • The unit of currency of spend and cost must be taken into consideration and costs must be aggregated on a normalized basis.	15
2.2.1	Cross-Media Coverage	These Standards encourage Cross-Media coverage for measurement of ad and media exposure, but do not require all measures of Outcomes to be include Cross-Media measurement. • Measures of Outcomes that do not account for one or more media in which the campaign or content is delivered must disclose this fact to end users. • The nature of any biases or errors associated with omission of one or more media should be generally disclosed and quantified. • Measurers are encouraged to measure all applicable media associated with a campaign or content delivery where possible.	17
2.2.1.2	Duration	Ad Exposure within Outcomes services that includes Cross-Media campaigns and measurement must adhere to MRC reporting of ad duration and Viewable Duration requirements.	18
2.2.2	Audience	Viewability should not be used to imply presence of a user or that an ad has been viewed/seen. • Measurers that signal the likelihood that a user is present are required for inclusion in Outcomes measurement.	20

Section	Subject	Detail	Page #
		Additional controls that provide further assurance of presence of a user are encouraged.	
2.2.3	Attention	Outcomes measurement providers should consider Advertising Exposure or contact by the consumer as well as their Attention or impact for any audience if causality is to be assessed. - Direct measurement of Attention is not required for Outcomes measurement in all cases due to feasibility and privacy considerations. - Attention measures that are not direct measures of physical or confirmed cognitive attention that are instead indirect measures for Attention, must be clearly distinguished from direct measures of Attention.	20
2.3.1	Single-Touch Attribution	Single-touch attribution use cases are generally limited to a specific campaign objective/product type. - Use of such an approach must be suited to and aligned with the campaign objective and be clearly supported to be used based on precedence. - End-users of single-touch approaches must be provided full disclosure of the assumptions, biases and limitations of such approaches.	22
2.3.2	Multi-Touch Attribution (MTA)	The process and support for determining which exposures are attributed and the weights or values assigned to them must be robust and demonstrable for audit purposes of MTA methodologies.	23
2.3.4.2	Time Decay Curves and Recency	Use of time decay curves, lead/lag parameters or recency approaches must be suited to campaign objectives and goals and based on empirical support. Re-creation and validation of research underlying curves utilized must be done.	23
2.3.4.4	Determining Attribution Weight	The process to determine and assign value to or weight various exposures or touchpoints must fit the use case of the campaign objective, be empirically supported and disclosed.	Error! Bookmark not defined.

Section	Subject	Detail	Page #
		• Attribution methods involving only certain media and not others must disclose such qualifiers to measurement reporting end-users • Attempts must be made to study and account for less available data and external or non-media factors if omitted or not considered. • Use of general or random statistical approaches to assigning weights in lieu of more robust correlation or evidence-based approaches must be explained and supported.	
2.3.4.5	Attribution Lookback Window	The attribution or lookback window must be supported and consistent across similar objectives. • These windows must be disclosed up front, in advance of campaign execution and as part of reported results. • Measurement providers must establish empirically supported limits to the length of a lookback period. • The basis for forecasts of campaigns over a period of time longer than the campaign length itself must be disclosed and the methodology for extending shorter period results should be re-evaluated periodically.	26
2.4	Test and Control Requirements	The results of RCT exercises and non-experimental methodologies must be treated as estimates and must adhere to statistical and sample-based requirements of the <i>MRC Minimum Standards</i>. • The selection and stratification of variables must be supported and based on evidence of meaningfulness fit for the use case. • Analysis of biases and objective processes to take corrective action during the analytical process must be established. • RCT approaches and non-experimental methods are encouraged to be subject to peer review. • Care must be taken to ensure the control groups are comprehensive and that any	26

Section	Subject	Detail	Page #
		limitations in coverage of the population being measured are accounted for. • The “exposed” and control groups must be validated to determine true exposure or lack thereof. • Validation of test and control approaches must (1) clearly identify and define treatment, (2) show that there was no contamination between group membership, and (3) provide evidence that treatment and control groups are equivalent and that any sampling biases are accounted for.	
2.5-2.5.7	MMM Requirements	Measurement services must try constantly to reduce the effects of bias, distortion and human error in all phases of its MMM activities. • Geographic areas used in MMM models or reporting must be clearly defined. • Geographic granularity must be made consistent or be appropriately considered among disparate datasets. • Minimum reporting standards should be applied to units of reporting and analysis granularity. • The period used for the historical MMM basis must be known to measurement reporting end-users. • Sources of spend data must be generally validated and vetted by the measurement services that rely upon them. • Currency and necessary conversions must be considered to ensure appropriate combinations and calculations. • To the extent that pricing changes and inflation are considered in models, the method of incorporating these aspects must be supported and fully disclosed. • Other influential factors must be included where variables are omitted, to account for resulting biases.	30-31

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		Model parameters should specify minimum data points for qualification and these minimums must be supported.	
3.1	General Model Requirements	Models selected for Outcomes measurement must have empirical support that they are fit for purpose. - Empirical support must include policies to periodically validate and improve selected models. - Models must be subject to documented oversight and governance procedures. - Measurement organizations must develop and support training and test data source qualification requirements. - A process for algorithm training and test design must be developed and documented. - Algorithmic biases including any systematic exclusion or differential performance of any relevant cohort, group, demographic (especially as it relates to Racial and Ethnic groups) must be considered, disclosed and an attempt must be made to address.	33
3.2	Universe	The source used for universe definitions must be from generally accepted independent third-party sources or derived by measurement vendors directly as part of high quality observation or surveys. - This data shall be updated at regular periodic intervals. - Adjustments to universe estimates shall be subject to robust quality control. - Universes shall utilize units appropriate to the underlying metrics. - Methods to convert or translate persons or household level Universe Estimates shall be empirically supported.	34
3.3	Coverage	Measurement organizations shall be diligent about ensuring valid projections are made and that any sample is representative of the population measured.	35

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		- Standard errors around sample-based projections shall be disclosed along with the impact of known non-systematic error/bias. - Limitations in measurement of the intended Universe shall be fully disclosed and quantified. - Measurement estimates shall not be projected to adjusted coverage, but instead to the Universe intended for measurement. - Measurers must periodically assess any measurement limitations and resulting biases.	
4.1.2	Uniques and Identification	To the extent measurement is reliant on matching disparate datasets, the match rate must be disclosed along with other statistical KPIs. - To the extent ID or matching is done on a level less granular than individual such as cohort, the reporting of the results of these processes should not claim a level of granularity more precise than the base data and processes. - Identifying users across devices has broad and significant privacy implications that must be considered.	38
4.1.3	Data Enrichment	Data fields/variables used as links should have demonstrable power sufficient for the process. - Empirical analyses should support integration priorities including weights or distance. - When data or processing procedures change within upstream data sources, the measurer must identify these changes and adjust its down-stream processing on a timely basis.	41
5.1	Data Rules	The measurement organization shall monitor the extent of data rules applied within reported results. - Significant types of data rules shall be disclosed with accompanying volumes. - Data rules which arbitrarily exclude outliers must have empirical support to justify these policies; where the loss of sample is	44

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		material, the measurer must comprehensively study this practice to support these data rules.	
5.2	Data Quality Control	Appropriate transaction records should be maintained for Outcomes measurements. • If changes are made to this information, these changes should be documented and care should be exercised to not bias or distort the measurement process. • Measurers should apply robust validation and quality control techniques continuously to collected and reported data. • Data Gaps should be considered in disclosures on the “projection validity” of the research as compared to the population being measured.	45
7.2	Privacy	Outcomes measurers should consider whether proper permissions and access rights are present. • To the extent that there is “structured missingness” or biases related to privacy, these must be disclosed and quantified. • Measurers must consider privacy restrictions and permissions in their methodology and be prepared to demonstrate via audit how these are managed to the extent they impact reported results. • Measurers must periodically research the impact of privacy and permissions on their methodology and consider whether these can be addressed or mitigated. • Restrictions to report requests or data granularity related to differential privacy should be disclosed to reporting end-users upfront along with general guidance. • To the extent “noise” or synthetic/artificial records are injected into reported results to enhance privacy, this must also be disclosed; such noise should be based on statistical techniques that seek to reduce bias and error, and the effects of such noise	48

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		must be quantified related to reported results.	
8.5	Traffic Types	For Outcomes measurement, all inorganic traffic categories should be segmented and disclosed. • Measurement organizations must present a segmentation of relevant measured activity differentiated by traffic categories. • These reporting requirements are applicable to the extent traffic is included within and reported as a part of Outcomes measurement services. • If traffic is not directly reported, these categories must be internally considered and differentially treated with regard to their impact on and attribution to Outcomes.	51
8.6	Data Retention	Detailed collected data supporting Outcomes measurement shall generally be retained for at least eleven months after the release of data. • Obfuscated or truncated data may be maintained to satisfy this requirement, but shall be available at a detailed level to allow reprocessing of reported estimates where necessary. • Privacy or contractual restrictions on raw data may stipulate shorter retention periods; deviations shall be supported by the measurement organization's privacy policy.	53
9	Disclosures	Variability and reliability must be actively disclosed along with the quantification of impact on reported results. • The methods and validation used to dimension variability should also be disclosed. • Organizations that conduct pilots should ensure consistent and explicit protocols are stipulated in advance of these pilots and should provide documented policies to users regarding pilot set up, communication of results (including on an interim basis.	54

13 References

MRC Minimum Standards for Media Rating Research:

<http://mediaratingcouncil.org/MRC%20Minimum%20Standards%20-%20December%202011.pdf>

MRC Cross-Media Audience Measurement Standards (Phase I Video):

[http://mediaratingcouncil.org/MRC%20Cross-Media%20Audience%20Measurement%20Standards%20\(Phase%20I%20Video\)%20Final.pdf](http://mediaratingcouncil.org/MRC%20Cross-Media%20Audience%20Measurement%20Standards%20(Phase%20I%20Video)%20Final.pdf)

MRC Digital Audience-Based Measurement Standards:

<http://mediaratingcouncil.org/MRC%20Digital%20Audience-Based%20Measurement%20Standards%20Final%201.0.pdf>

MRC Multi-Channel Digital Video Data Capture, Accumulation and Processing Guidelines

<http://mediaratingcouncil.org/Guidelines%20for%20the%20Capture,%20Accumulation%20and%20Processing%20of%20RPD%20Data.pdf>

MRC Guidelines Concerning Data Integration:

<http://www.mediaringcouncil.org/MRC%20Guidelines%20Concerning%20Data%20Integration.pdf>

MRC Location-Based Advertising Measurement Guidelines:

<http://mediaratingcouncil.org/MRC%20Location-Based%20Advertising%20Measurement%20Guidelines%20Final%20March%202017.pdf>

14 Supporting Associations and Participating Organizations

About the Media Rating Council (MRC)

The Media Rating Council is a non-profit industry association established in 1963 comprised of leading television, radio, print and digital media companies, as well as advertisers, advertising agencies and trade associations, whose goal is to ensure measurement services that are valid, reliable and effective. Measurement services desiring MRC accreditation are required to disclose to their customers all methodological aspects of their service; comply with the *MRC Minimum Standards for Media Rating Research* as well as other applicable industry

measurement guidelines; and submit to MRC-designed audits to authenticate and illuminate their procedures. In addition, the MRC membership actively pursues research issues they consider priorities in an effort to improve the quality of research in the marketplace. Currently approximately 110 research products are audited by the MRC. Additional information about MRC can be found at www.mediaratingcouncil.org

About the Association of National Advertisers (ANA)

The ANA's (Association of National Advertisers) mission is to drive growth for marketing professionals, brands and businesses, the industry, and humanity. The ANA serves the marketing needs of 20,000 brands by leveraging the 12-point ANA Growth Agenda, which has been endorsed by the Global CMO Growth Council. The ANA's membership consists of U.S. and international companies, including client-side marketers, nonprofits, fundraisers, and marketing solutions providers (data science and technology companies, ad agencies, publishers, media companies, suppliers, and vendors). The ANA creates Marketing Growth Champions by serving, educating, and advocating for more than 50,000 industry members that collectively invest more than \$400 billion in marketing and advertising annually.

About the American Association of Advertising Agencies (4A's)

The 4A's was established in 1917 to promote, advance, and defend the interests of our member agencies, employees and the advertising and marketing industries overall. We empower our members to drive commerce, spark connections, and shape culture through infinite creativity. With a focus on advocacy, talent and the value of creativity and technology to drive business growth and cultural change, the organization serves 600+ member agencies across 1,200 offices, which help direct more than 85% of total U.S. advertising spend. The 4A's includes the 4A's Benefits division, which insures more than 160,000 employees; the government relations team, who advocate for policies to support the industry; and the 4A's Foundation, which advocates for and connects multicultural talent to the marketing industry by fostering a culture of curiosity, creativity and craft to fuel a more equitable future for the industry.

About the Association of Canadian Advertisers (ACA)

The ACA is the only professional trade association solely dedicated to representing the interests of client companies that market their products and services in Canada. Their members, over 300 companies and divisions, have collective annual sales of approximately \$300 billion.

Participating Working Group Organizations:

A&E Ole	Envionics Analytics	Nielsen
ABC Owned Stations	Epsilon / Conversant	OAAA
ACA	ESPN (Disney)	Olympic Media Consultancy
Advocado	EY	OMG/Annalect
Agency 5	FOX Broadcasting	Oracle Moat

Amazon	FreeWheel	Pandora
ANA	Gannett	PHD Canada
ARF	General Motors	PlaygroundXYZ
ARF/CIMM	Goldman Sachs	ProdegeVN
Arima	Google	ProRelevant
Audacy	GroupM	Publicis Media
AURN	Havas Media	Publicis: Starcom
BDO	Hubbard Broadcasting	RRC
Bill Harvey Consulting	IAB	Sarkes Tarzian
Billups	IAS	Scripps Networks
Brand Metrics	IBO USA	Sequent Partners
C3 Metrics	Initiative	Snap
CBS TV Stations	Instacart	Spectrum
Central Control	iSpot	Telemundo
CESP	ITN Networks	The Trade Desk
CMDC	IRI Worldwide	Thinktv
Comcast effectv	Kantar	Truth{set}
Commerce Signals	LoopMe	Turner Broadcasting
Comscore	MasterCard	TV Azteca
Cox Media Group	Meredith	Ubermedia
Craig Jaffee Research & Analytics 360	Meta	Unilever
CUENDE Infometrics (Consultant)	NAB	VAB
Deloitte & Touche	NBCUniversal	VIZIO
Discovery	Nestle	VMC Media Group
Dynata	Neustar	Xandr

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