BETTER REPRESENTING PRINT MAGAZINES IN ROI ANALYSIS

Randy Freisner, SVP/Group Director Engagement Team, The Martin Agency Dr. James H. Collins, Senior Vice President, Research GfK MRI

Introduction

Ever increasing pressure to demonstrate marketing ROI has irreversibly altered the way decisions about advertising are made. Advertisers and their agencies continually strive to leverage the best available data, and increasingly rely on sophisticated analytics and modeling to inform and validate their media and marketing choices. The better the data, analytics and models – the better the decisions.

With increasingly sophisticated granular ("Big Data") measures and discriminating analytical methods, the imperative that each medium be accurately and fairly represented with respect to targeted exposures is heightened. Television, and now digital with viewable impressions and online campaign ratings, are able to provide solid metrics for ad exposures, wherein GRPs can be disaggregated into both reach and frequency estimates diachronically.

Heretofore the same cannot be said for magazines; all very much to their detriment in the media plan.

Magazines have traditionally been represented in ROI-related analyses through average or single-issue net audience. However, research from a variety of sources over multiple decades indicates that magazine reading occurs at higher levels than captured by these average or single-issue exposure metrics; readers typically looking into individual issues multiple times. Hence, average and single-issue reach inadequately reflect authentic magazine exposure, particularly as related to time. As a result, magazine exposure levels used in ROI models and media planning are routinely significantly mischaracterized and understated.

For magazine publishers, the consequences of undercounting exposures are significant from a business standpoint. All media should be fairly and accurately measured, and there is now an opportunity through advanced analytics to implement a better metric for magazine exposures over time.

In collaboration, GfK MRI and The Martin Agency have developed an enhanced approach to calculating gross impressions for magazines, incorporating average-page-exposure (APX) and audience accumulation to more accurately represent gross impressions per issue. This approach builds upon prior work done by GfK MRI, The MPA, and Brand Science regarding the use of audience accumulation within marketing mix modeling, but goes beyond this earlier work by incorporating additional data and analytics to address multiple exposure accumulation per issue.

The following will outline 1) the details of this enhanced magazine reading metric, 2) results from particular case studies and analyses (e.g. agent-based modeling and econometric modeling) undertaken by The Martin Agency, Pointlogic and Concentric and 3) implications for media planning.

Magazine Audience and Gross Impression Accumulation

The methodologies of a number of readership studies conducted over the last five decades in the United States, Europe and elsewhere have directly or indirectly measured the rates at which magazine audiences accumulate over the life of a particular issue. Sometimes such audience accumulation measurement was the primary focus of the research and at others it was a secondary artifact of a design whose primary focus was elsewhere. Nevertheless the data resulting from such work has proven useful and important in a variety of media analysis related applications, for example, multi-media plan flighting and return-on-investment (ROI) analysis are two such applications. However, while these audience accumulation measures have allowed magazines to participate in these granular diachronic analyses such integration has generally been nominal and largely and substantially incomplete.

As noted above, the integration of most media into these diachronic analyses has been largely through impression-based metrics, e.g. weekly GRPS, total page-views, etc. This is sound insofar as for most advertising multiple exposures spread over time have a greater impact than a single exposure at an individual moment. The particular exposure thresholds may vary from campaign to campaign as will their distributions, but irrespective of the particulars, frequency of exposure matters and its temporal distribution generally matters a lot!

Fortunately the data required to estimate the accumulation of magazine issue impressions over time is often an artifact of magazine issue audience accumulation research. For example, GfK MRI's magazine audience accumulation research in 1999-2000 employed a magazine reading diary whereby the studies' participants recorded date, time and magazine title and issue for all reading occasions during a week's timeframe. While GfK MRI's basic audience accumulation distributions derive from the first reading occasion of a magazine title/issue, essentially all reading occasions, and hence all impressions, are reported. This temporally comprehensive impression data constitutes one fundamental but alone incomplete aspect of the work at hand.

Magazine reading, like virtually all media consumption is usually partial. Television program viewers view programs, but only rarely do they view all program minutes. Likewise internet site visitors view the site's pages but very rarely do they view all the site's pages. Hence, audience ratings for such media attempt to reflect this pattern of incomplete consumption. In the United States most television advertising transactions are based on C3 ratings - viewing of commercial minutes within the first three days of a program's airing – and the metrics for internet site audiences include page-views and time-spent beyond the aggregate individual visitor metric.

To account for the partial nature of magazine issue exposure GfK MRI's Survey of the American Consumer captures Percent of Pages Read, Reading Days and Number of Different Issues Read among a variety of metrics related to individual magazine audiences. Typically these metrics in combination have been used to develop an average page exposure estimate (APX = Percent of Pages Read * Reading Days * Issues Read). So for example, if a reader of a magazine reads 60% of the pages of an issue on a typical reading occasion, reads that issue on two occasions and reads only that single issue in the issue interval then their APX is 1.2 (1.2 = 0.60 * 2.0 * 1.0). From APX, page-based gross impression easily follows: GI = APX * Average-Issue-Audience.

The combination of these page-based gross magazine issue impressions (from GfK MRI's Survey of the American Consumer) and the gross accumulation distribution from the audience accumulation research (early GfK MRI Audience Accumulation Study) yields a realistic estimate of gross impressions (or GRP's) over time. Specifically, page-based gross magazine issue impressions are distributed proportional to the gross accumulation distribution, similar to the manner in which average-issue-audience is distributed diachronically using the basic audience accumulation distributions.

Following are two sets of graphs comparing these more granular and we propose more informative gross impressions based audience distributions with simple reach-based distributions:

Chart #1 - Weekly Entertainment Magazine Reach / Gross Impression Cumulative Distribution



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Chart #2 - Weekly Entertainment Magazine Reach / Gross Impression Daily Distribution



Chart #3 – Monthly Travel Magazine Reach / Gross Impression Cumulative Distribution



Chart #4 – Monthly Travel Magazine Reach / Gross Impression Daily Distribution



These graphs show the expected sorts of characteristics of reach and gross impressions:

- 1) Most reach accumulates early in the magazine issue interval
- 2) Minimal reach occurs later in the issue interval due to pass-along and other non-primary reading
- 3) Reach for a weekly accumulates more quickly than for a monthly
- 4) Given substantial multiple reading occurrences gross impressions continue at substantial levels albeit while reach is decaying.
- 5) Particularly for a monthly, but also for a weekly, the use of reach in audience effectiveness evaluations substantially discounts the continuing delivery (frequency) of exposure.

Case Study Validation

To further validate the effect of Magazine Gross Impressions accumulation within the media planning process we developed two case studies, examining attribution and return on investment (ROI) for magazine.

In each case, we compared two types of magazine exposure definitions and their overall effect on the contribution of magazines to Key Performance Indicators (KPI's) and ROI:

- Traditional method: issue exposure: Magazine exposure calculated as one contact per respondent per issue
- Average Page Exposure (APX) method: Magazine exposure calculate using Average Page Exposure as outlined above

Case Study #1: Magazine Impact on Brand Equity - Ready-To-Serve Soup

The first case study uses agent-based modeling (ABM) to simulate the attribution of magazine exposure to brand equity for the ready-to-serve soup category. To test, we analyzed annual campaigns for three different soup brands within the U.S. market. Each brand had varying levels of TV and Magazine support throughout the year; we examined how these different levels affected brand equity.

Agent-based modeling fuses traditional modeling with brand research to build a powerful simulation useful for scenario planning. It is flexible enough to incorporate third-party quantitative and qualitative data sources like social network activity, product quality, creative messaging and trade promotions. These combined data sources simulate the entire communications ecosystem, providing a unique way to gain cross-channel attribution insights. It can also operate with expert assumptions made in the absence of certain data points.

ABM is a system made up of autonomous decision-making entities ('agents') which independently assess their situations and make decisions according to a predefined set of rules. The simulated interaction between agents allows us to explore dynamics that are beyond reach of pure mathematical models. In the marketing case, the core unit of analysis is the customer, and one can change features of the environment, the product, message, timing, and spending allocation in order to see the effects on sales, brand equity, awareness, word-of-mouth (WOM), etc.

Agents are populated by drawing from a database of inputs, using statistical techniques that recreate the diversity and heterogeneity of the consumer profiles. Simulated agents (or consumers) in the model make multi-attribute, multi-alternative decisions during the course of the simulation.

For the purpose of the ready-to-serve soup simulation, we developed four discrete target segments. Through focus groups and an online survey we identified category drivers, important product attributes and how each target segment rated the soup brands' performance against those drivers and attributes. These answers became the foundation for the agent behaviors within the model. The online survey also provided segment-specific baseline awareness and perception levels for each soup brand.

Other inputs into the model included

- Weekly sales
- Price and promotions data
- Segment size
- Online behaviors
- Occurrence level media data
- Creative messaging

For the purpose of this analysis we developed two simulations, with level of magazine exposure as the only variable. In all cases, we found that using the APX method increased the overall number of magazine TRPs for each brand.



Chart #5 - Magazine TRPs by brand for each simulation (without APX and with APX)

However, using the APX method did not always produce incremental exposures or increased media delivery. The results varied depending on the target segment's magazine habits. For example, our male-dominated target segment performed at <1.0 APX for female-dominant magazine properties.

All decisions in the ABM are based firstly on an agent being aware of a brand, and secondly on a combination of the importance of different attributes relative to how an agent perceives each brand's performance on these same attributes. The decision-making settings in the simulation modulate the level of rationality based on the importance of attributes and brand perceptions.

Our key metric for this evaluation was Brand Equity attribution, which is a result of the combined efforts of paid, owned, and earned media touch points and the degree to which these exposures changed brand perception. Using the APX method for calculating magazine gross impressions resulted in a significant change in brand equity attribution for magazines. Consequently, we observed decreases in attribution to word of mouth and TV.



$Chart\,\#\!6-Change\ in\ brand\ equity\ attribution\ for\ magazine\ for\ each\ simulation$

Chart #7 - Change in brand equity attribution across media type in each simulation



Case Study #2: Magazine Impact on Purchase Intent - Personal Care Product

The second case study was developed with Pointlogic, a company that develops decision-supporting solutions and analytic applications used to improve marketing effectiveness. This case study used a respondent-level econometric modeling technique to determine the media effectiveness for a campaign in the Personal Care category.

The campaign was a 6-month effort made up of television advertising (0:30 and 0:15 TV spots), magazine advertising and online advertising. The main KPI for this campaign was Purchase Intent which was measured throughout the campaign using a campaign tracker using a sample of n=3,250 (125 respondents per week). In addition to Purchase Intent, we collected additional data points, including:

- Socio-demographic information
- Product usage
- Brand relation
- Media consumption behavior

The applied respondent-level modeling approach is slightly different to how it is traditionally done, and it is becoming an increasingly popular methodology for many businesses. The data is used at an individual level instead of periodical (e.g. weekly, monthly) level. This approach works very well for brand KPIs based on individual consumer perspective, like awareness, preference, and purchase intent. Respondent-level modeling goes beyond understanding simply WHAT happened, allowing us to understand WHY it happened. In short, it gives us a more complete understanding about the consumer-brand interaction and the role of marketing.

Other benefits of this modeling technique include:

- More data: the 6-month campaign creates 3,250 instead of just 26 or 6 data points.
- > Higher granularity: Increasing the data points provides a platform for more detailed analysis
- > Faster process: If a brand already has a tracker in place, there is no need to collect fresh data.
- Actionable results: Speeding up the modeling process means the results can be applied immediately, well before the data becomes obsolete.

For this case study, we compared two types of contact definitions for Magazine advertising (with and without including APX) and tried to understand how these different definitions affect the contribution of Magazine advertising towards Purchase Intent.

The results of this case study show that using the APX methodology will result in a more accurate and considerably higher ROI for Magazine advertising within a marketing mix. For this specific situation, the relative increase of the ROI of Magazines was +12%. This increase came mostly at the expense of the 0:15 TV Spot, which saw a -18% decrease in Purchase Intent attribution. This can be explained by the fact that the Magazine flight and the 0:15 TV spot flight had highly overlapping schedules, while the 0:30 TV spot did not overlap as much with the Magazine schedule.

Additionally, the overall quality of the model was slightly improved when we used the contact definition including APX.

Chart #8 - Media ROI based on Magazine contact definition w/o and w/ APX

Medium	ROI based on contact def. w/o APX	Relative change of ROI when using contact def. w/ APX
TV:30		-1%
TV:15	\bigcirc	-18%
Magazines		12%
Online	0	

Chart #9 – Magazines ROI based on Magazine contact definition w/o and w/ $\ensuremath{\mathbf{APX}}$



Implications for Media Planning

As previously stated, ever increasing pressure to demonstrate marketing ROI has irreversibly altered the way decisions about advertising are made. As advertisers and agencies, we are increasingly relying on sophisticated analytics and modeling to inform and validate our media decisions. It is imperative that that each medium be accurately and fairly represented. This new approach to defining print gross impressions more accurately reflects the way in which consumers interact with magazines, the contribution of print in modeling and thus will have significant impact on the media planning process. Targeted impressions for magazines can now compete with the solid metrics already being used for television and digital exposures.

This more accurate data for magazines should be included in media mix models. The result will be a more accurate assessment of the contribution of magazines to an overall media plan, as well as lower the cost per exposure (in most cases), making magazines more competitive to other media choices. Media professionals will then have a more accurate reflection of *real* readership patterns and have enhanced consideration for the role of magazine in the overall media plan.