

EQUALITY WITHIN THE MEDIA MIX: A LONGITUDINAL WEEKLY ALLOCATION OF MAGAZINE AUDIENCES

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**“Half of my advertising is wasted; I just don’t know which half”
John Wanamaker**

The quotation above was taken from a late 1800’s speech in which John Wanamaker cited a problem that still exists today for many advertisers. The name of the game in advertising has become accountability for dollars spent. This demand has forced the need for all media to be compared to each other. This comparison, best achieved through marketing mix modeling which is dedicated to producing return on investment scenario planning has evolved to become a primary tool for many advertisers. One of the most important questions in marketing mix modeling is how to handle periodicity within the models. Television is planned on a weekly basis, magazines are planned based on their own unique publishing schedules, direct mail and coupons usually run on a weekly basis, and the rise of the internet offers media vehicles on both weekly and daily periods. With all of the variation in measurement periods, how can any model be developed which yields useful information that can ultimately be compared across media?

In response to all the confusion, agencies have started modifying their planning process over the last several years. Where once magazines were planned based on publishing schedules, the latest trend is to view media from an integrated campaign perspective. Advertising agencies have begun to modify their print planning process to match print delivery with that of television, converting everything to weekly audience delivery. This has created a need to plan magazines on a weekly basis similar to the way that broadcast media are planned. Due to this paradigm shift, the re-emergence of audience accumulation and the need for more frequent and comparable reader metrics have become a focal point in media planning.

Currently, print planning systems feature reach and frequency estimates for audience accumulation. A planner selects publications and then manually analyzes the given audience accumulation across weeks. Planners tend to use a trial and error approach to achieve consistent or peak audience reach levels across various issues of publications at specific points in time. Given the complexity of some publication schedules today, this may result in hundreds or even thousands of schedule combinations that must be evaluated by the media planner. With all of these combinations, it is almost impossible and extremely time consuming to optimize publication schedules.

This paper investigates the very heart of the matter. It addresses a method of optimizing magazine audience delivery using accumulation curves. The aim is to provide a solution to the issue at hand for magazine planning, how the entire media mix can be planned across one common timeframe. Specifically, this analysis will focus on the optimization and allocation of magazines throughout a weekly campaign period. IMS in association with the Magazine Publishers of America has developed a software program which serves as a new tool to identify the optimal insertions and best allocation of magazine flighting on a weekly basis throughout a campaign period. Unlike standard reach and frequency optimization suggesting the number of insertions to place in which magazines for the overall campaign; this analysis will also span time and suggest a scheduling pattern that will best meet an advertisers needs, e.g. impact vs. continuity. This analysis is illustrated through two examples demonstrating the best weekly issue allocation for magazine flighting throughout each campaign period.

Methodology Overview:

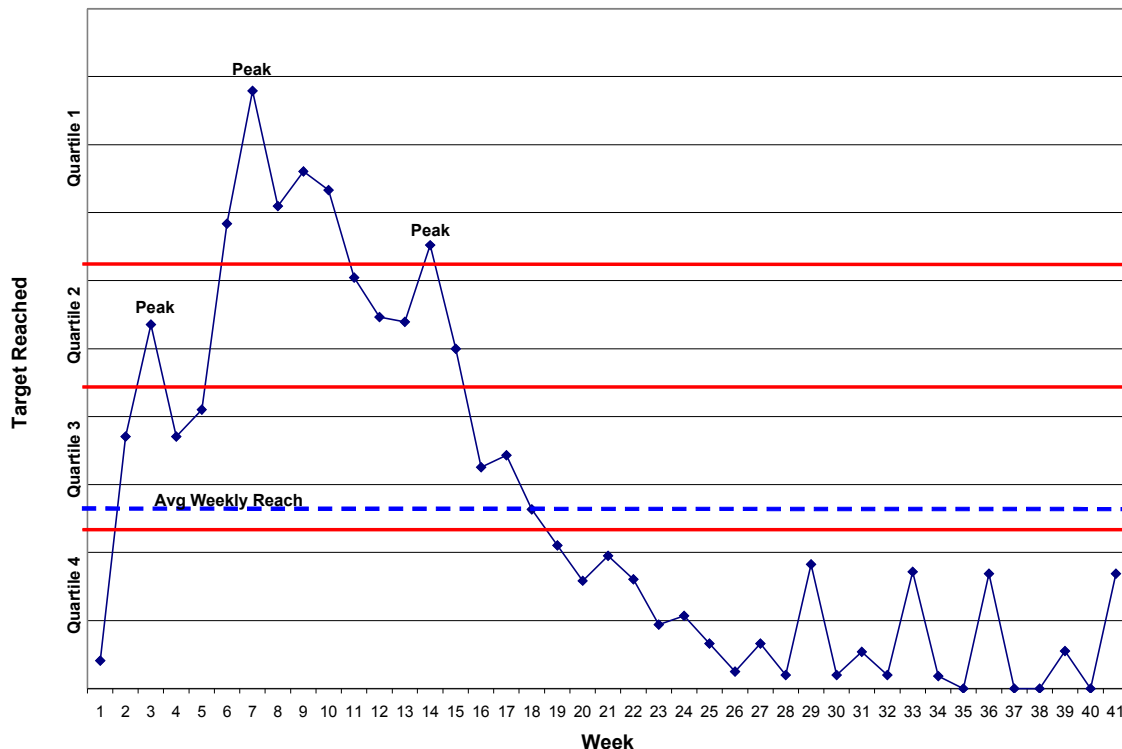
Using IMS’ Print RandF software suite as a base, the new software has been developed to optimize print campaign magazine insertions and select issue date combinations for a given set of publications. This two step process optimizes a total campaign’s reach based on budget constraints and then allocates the given issues across weekly time intervals to best align with advertiser goals. This process is based on inputs about a company’s magazine advertising campaign. This inputs range from information about peak sales cycles and type of audience accumulation desired (peak reach versus evenly distributed reach) to weighting factors that emphasize critical advertising periods. With the advertiser’s goals in mind, iterations of issues within the overall campaign are processed. The best sets of issues are selected for the overall campaign. The highest reach value and the best allocation scores are selected using flight alignment of issues.

Optimization & Scoring Mechanism:

The optimization evaluates iterations of magazine issues and reports a number of insertions which maximize reach using a constrained budget. The scoring mechanism to allocate insertions through time selects the best score according to how closely the reach of the selected issue dates align with advertising goals. Due to the nature of the conflicting planning methodologies, different algorithm frameworks exist for peak target accumulation (peak reach) versus evenly distributed audience accumulation (even reach).

In order to fully describe peak audience accumulation, the definition of a peak must be defined. Using pre-defined readership data for each publication, weekly reach values are calculated. The maximum, average, and quartile values are determined from this series of accumulation values. The quartiles are set up from largest to smallest and peaks are assigned for weekly reach values. Each point within the time series is analyzed to determine if it lies within a quartile, maximizes in the same quartile, and then drops below the cut off point for a particular quartile. Each subset of the time series is tracked from the three points described above. Chart 1 illustrates how peaks are defined.

Chart 1 - Peak Definition:



Peak Reach Scoring Methodology:

The peak reach scoring methodology uses a three dimensional approach to score each iteration. The first dimension measures the distance through time between actual peaks in audience accumulation and target peaks input from the advertiser's goals. This component measures the distance across weeks and assigns penalties according to the number of weeks away from the closest targeted peak. The second dimension measures the vertical size of the peaks relative to the average weekly reach across the flight and calculates deviations from the average to score the various magnitudes of each peak. The third dimension uses the weighting factors of importance input from the advertising goals to calculate a weighting ratio corresponding to the relative importance of each peak as compared to the others. Using a three dimensional approach, the highest score becomes the optimal plan for a given flight as it spans weekly time increments.

Even Reach Scoring Methodology:

The even distribution scoring methodology measures the variation across time and selects the lowest sum of squares score of all iterations tabulated. The MRI reader accumulation study has produced publication readership estimates for up to 30 continuous weeks after on-sale dates. To appropriately incorporate a method of including this long period of audience accumulation, this analysis allows the option of specifying a percentage of accumulated reach to be included in each flight. Before scoring any iteration, checks are completed of this input and changes are made to the percentage if needed.

Must Buy Exception

In some planning scenario cases, it is a necessity to mandate that a "must buy" is selected. A must buy is a user defined magazine issue that must be in the plan. This study selects the optimal schedule incorporating the must buy as another constraint in the scoring mechanisms.

Examples: Audience Accumulation Illustrations:

This development work is illustrated through two examples. The first shows a durable goods manufacturer focusing on the safety aspects of their products. The second audience accumulation illustration is demonstrated through a consumer packaged goods company. Each analysis uses a historic baseline magazine print plan and an optimized print plan based on this analysis.

The applications used for this are the IMS RandF™, IMS Adcume™, and the newest optimization application described previously. These systems determine magazine insertions over an entire campaign and allocate each insert through time. The data source used is the 2004 MRI Doublebase Study and the most recent MRI Audience Accumulation Study.

Example 1: Durable Goods Manufacturer:

In this first example of magazine audience accumulation, a durable goods manufacturer is interested in promoting new safety features for their products to a target of women ages 25-54. Because of the seasonality involved in sales of their products, the advertiser wants several periods of intense customer targeting in the spring and fall as well as a sustained targeting campaign in the summer. In analyzing historic sales trends against new product launches and other peaks, the print campaign could be optimized on audience readership by using three periods of magazine advertising flights. To best match advertising goals, the first flight has been setup to start in January and achieve peak accumulation of audience levels just before the beginning of spring. This flight continues through the spring where flight 2 begins in May. Throughout the summer (flight 2) a constant campaign is desired so an even reach accumulation method is desired to provide the target audience with sustained messages about the upcoming fall product launches. The third flight begins in August and continues through the end of the year with heavy targeting in the fall. As a result two peak accumulation periods are desired in September and November to effectively convey messages about the upcoming product launches.

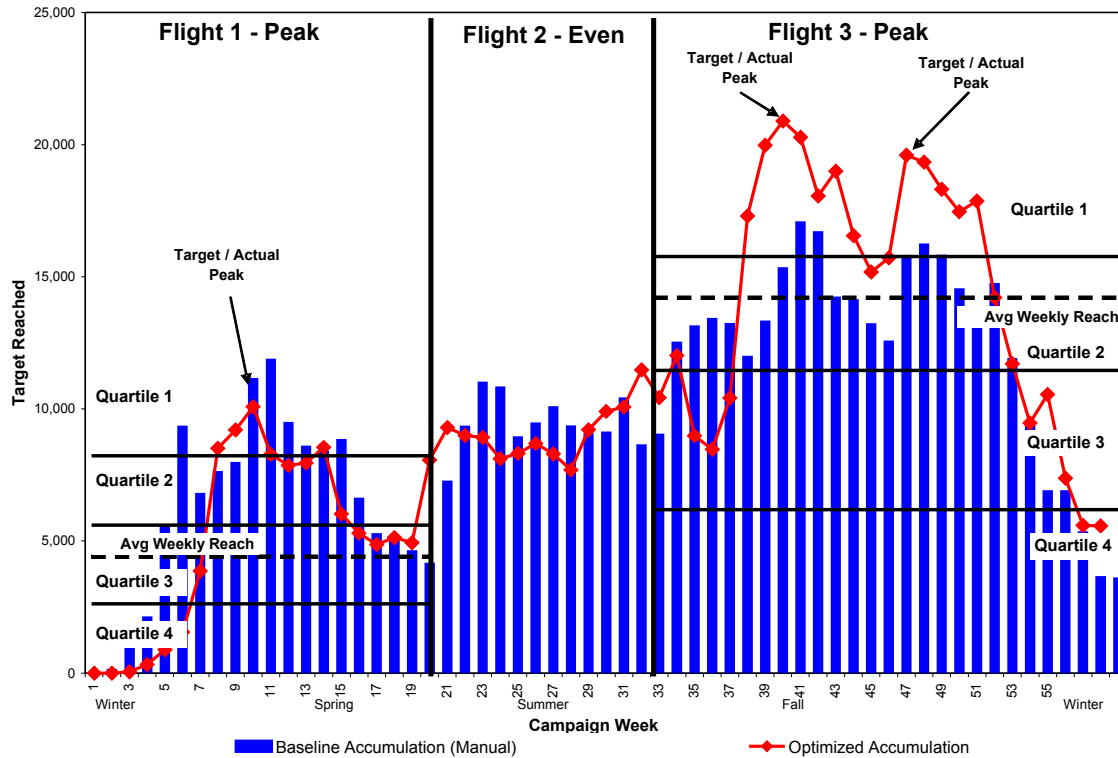
Using these marketing goals, the IMS systems and MRI data were analyzed to produce an optimal reach and frequency for a specific list of publications and inserts against the baseline plan. Table 1 provides a baseline list of publications with insertions and aggregates for the optimized plan.

Table 1: Baseline vs. Optimal Publication/Insertion List

Publication	Baseline Insertions		
	Flt 1 Insrts	Flt 2 Insrts	Flt 3 Insrts
Good Housekeeping	1	1	3
Ladies Home Journal	1	2	2
Oprah	2		2
Woman's Day	1	2	2
Redbook			2
More		1	2
Better Homes & Gardens	1	2	3
Coastal Living	2	1	1
Country Living	1	1	3
House Beautiful	1	2	2
Southern Living	1	1	3
Traditional Home	2	1	2
Sunset	2		2
Martha Stewart Living			2
Real Simple			2
House & Garden			2
Family Fun	1	2	3
Parenting	1	2	2
Parents	1	1	3
Baby Talk	1		
Working Mother			2
National Geographic – Traveler	1	1	2
Travel & Leisure	2		2
Bon Appetit	1	1	3
Cooking Light	2	1	2
Gourmet			2
Food & Wine			2
Health	2	1	3
Car & Driver	2	2	2
Motor Trend	2	1	4
Road & Track	2	2	3
People	2	1	3
Total Inserts - Baseline	35	29	74
Total Inserts - Optimized	43	33	78

The total number of inserts increased approximately 11.6% from the baseline to optimal plans. This overall increase indicates that magazine advertising is under subscribed. The next step after optimization was to analyze how the insertions were allocated across the campaign weeks. Figure 2 provides an illustration of how the audience accumulation behaves between the two campaigns.

Figure 2: Durable Goods Audience Accumulation



In the first flight, the baseline plan performed slightly better than the optimized plan but in the third flight, the optimized plan provided much more efficiency in achieving the desired advertising goals. Overall metrics for the campaign are below in table 2.

Table 2: Durable Goods Print Plan Comparison - Overall Metrics:

Metric	Baseline	Optimized	% Change
Budget	\$8.18MM	\$8.17MM	-0.04%
Reach 1+	88.6%	92.8%	4.7%
Avg Frequency	13.3	16.0	20.4%
GRPs	1180	1487	26.0%
CPM	24.7	20.38	-17.49%
Total Inserts	138	154	11.6%

The optimized version of this plan for this durable goods company is a much more efficient campaign. This analysis confirms that for this product adding 11% more issues of selected magazines will result in a 5% increase in overall reach for the target audience.

Example 2: Consumer Packaged Goods (CPG):

In this second example of magazine audience accumulation, a consumer packaged goods company is planning to introduce a new feature for a set of commodity products. Due to the seasonal nature of the commodity the advertiser expects similar seasonality in this new set of features to that of the commodity goods. For these new features the target is adults 25-49. Due to the highly cyclical nature of these products during the late spring, summer, and early fall months, the CPG's advertising goal is to build sales by peaking audience levels just before in the early spring and late summer / fall timeframes. To achieve this goal the print campaign is optimized on audience readership by using two periods of magazine advertising flights. The first flight is set up to start in January and end in June with two peak periods of audience accumulation through the spring. The second flight is structured to start at the end of June and run through the end of the year. This second flight serves to provide two

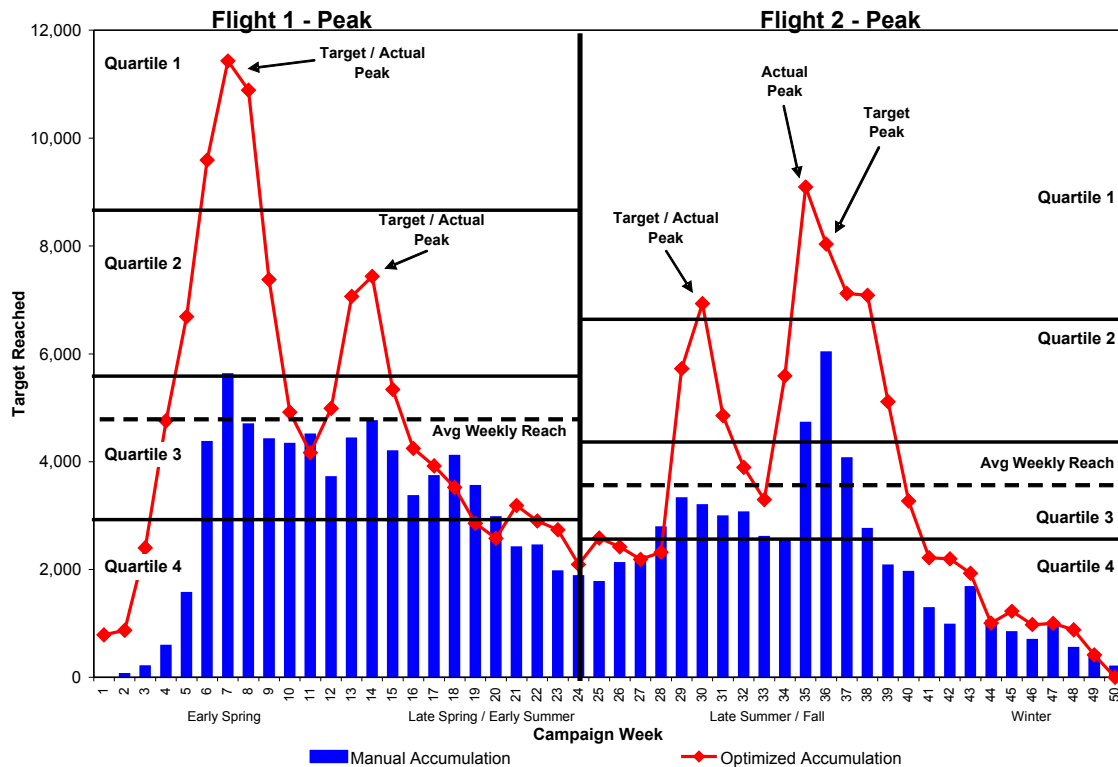
intermittent peaks with a final peak in the fall to promote the new features of the commodity going into the colder months.

Using these marketing goals and a baseline print schedule, an analysis has been completed resulting in an optimized print schedule. Table 3 provides a baseline list of magazines and insertions with an overall optimized summary of insertions.

Table 3: Baseline vs. Optimal Publication/Insertion List

Publication	Baseline	
	Flt 1 Insrts	Flt 2 Insrts
Premiere	4	3
Entertainment Weekly	2	1
People	1	1
Bon Appetite	2	1
Gourmet	2	
Essence	2	
Elle	4	4
Vogue	4	2
Harpers Bazaar	2	1
In-Style	3	2
Oprah	3	
GQ	2	2
Details	2	1
Esquire	3	3
Elle Decor	2	2
Metropolitan Home	2	3
Conde Nast Traveler	2	1
Vanity Fair	3	3
Total Inserts - Baseline	45	30
Total Inserts - Optimized	57	27

Table 3 shows an overall increase in the total number of insertions indicating that the baseline plan is below optimal levels. An analysis of each flight shows that flight 1 inserts increased significantly but flight 2 inserts stayed at approximately the same level. Figure 3 provides an illustration how the audience accumulation is built throughout time.

Figure 3: Consumer Packaged Goods Audience Accumulation

Overall, the optimized campaign performs much better than manual allocation of magazine issues. The last peak of the second flight is 1 week off target but all other peaks match as the plan specifies. Overall metrics for the campaign are below in table 4.

Table 4: Consumer Packaged Goods Print Plan Comparison - Overall Metrics:

Metric	Baseline	Optimized	% Change
Budget	\$5.5MM	\$5.4MM	-0.5%
Reach 1+	48.88%	59.79%	22.3%
Avg Frequency	4.67	6.45	38.1%
GRPs	228	386	69.3%
CPM	36.56	21.53	-41.1%
Total Inserts	75	84	12%

The optimized version of this plan for the CPG Company is a much more efficient campaign. The peak periods are enhanced and provide a much better delivery of reach to the target audience. A 12% increase in the number of inserts generates a 38% increase in the target audience reached. Reaching the target audience at the right time is crucial and this optimized plan accomplishes that goal much better than the baseline plan.

Concluding Comments:

With corporations under increased pressure to show that every dollar they spend delivers results, marketing expenditures are now being held to the same level of accountability as other investments.

Clients now expect to see detailed, quantifiable results for their marketing and advertising efforts that demonstrate a positive return on their investments. They want to know which elements of their advertising plan helped achieve their goals in the most efficient manner – and which did not – and allocate their budgets accordingly.

Over the next several years, the need for more effective and efficient media analysis tools with cross media planning capability is going to be huge. Tools like the new IMS product called OptAccume™ and analyses like this will take the first step in providing the link to media spend accountability and placing magazine advertising on the same level as television and radio have been for some time. The current assumptions of how to distribute print across time will no longer be made because the output of the audience accumulation will show an optimal print schedule on a weekly basis. With a minimal amount of work media practitioners can then construct the best return on investment analysis for advertisers in less time.

Better print planning tools can be leveraged to help generate more targeted magazine creative. Better, more relevant and therefore engaging advertising for the reader translates into advertising that works. And when advertising engages the reader, they respond. That's cause for more of it to run. It is clearly in the best interest of magazines to become an active partner in exploring better means of planning for magazines in a multimedia world. The MPA stands willing to embrace any serious efforts in furthering this goal.

References:

Interactive Market Systems, Inc. (2005). *IMS Print RandF, IMS Adcume, IMS OptAccume*.

Mediamark Research, Inc. (2004) *2004 MRI Doublebase Media/Marketing Study and Magazine Accumulation Study*.

